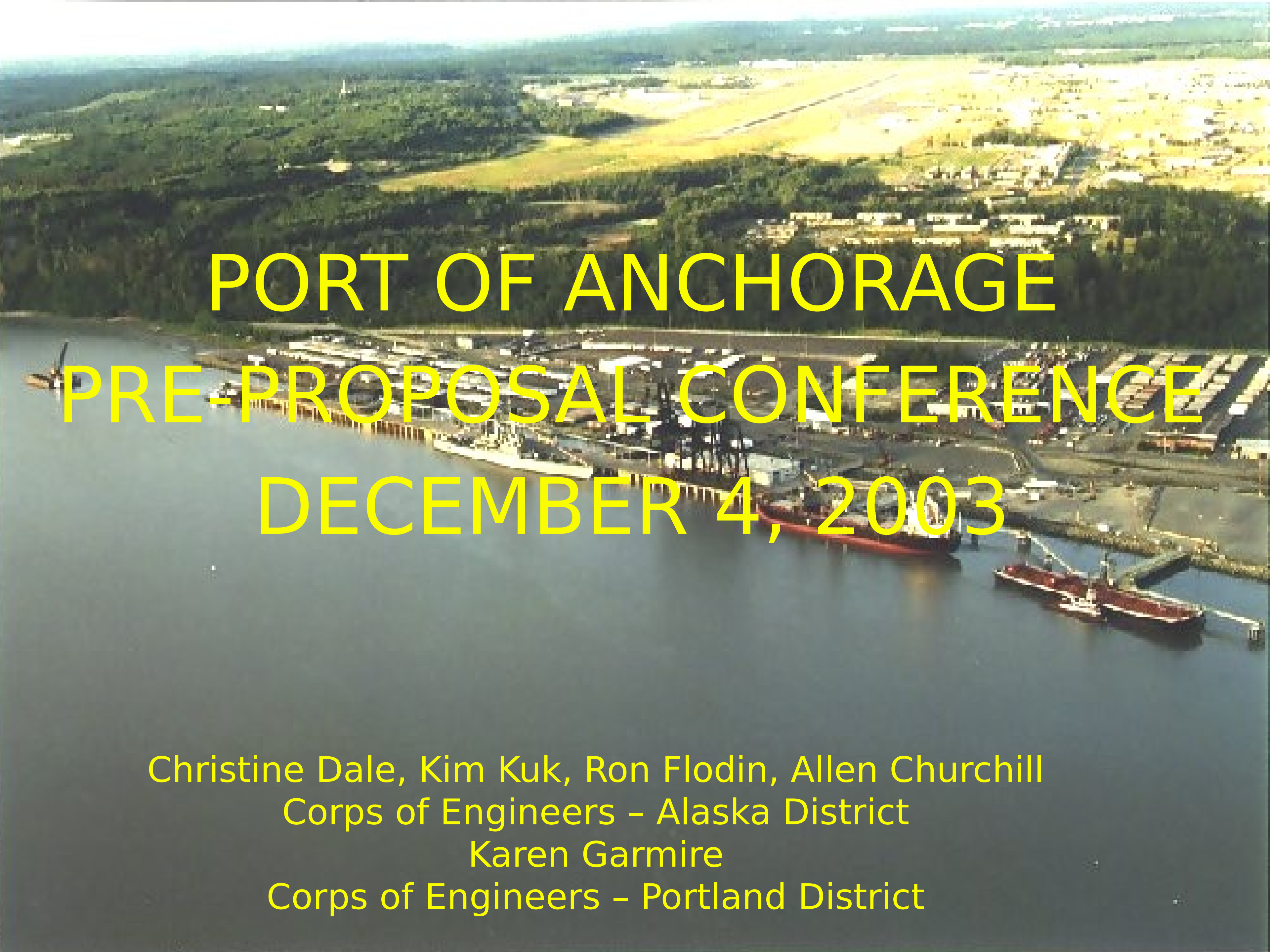


PORT OF ANCHORAGE
PRE-PROPOSAL CONFERENCE
DECEMBER 4, 2003

Christine Dale, Kim Kuk, Ron Flodin, Allen Churchill
Corps of Engineers – Alaska District
Karen Garmire
Corps of Engineers – Portland District

Speaker

CHRISTINE DALE
Contract Specialist

Ground Rules

- Be sure you have signed in.
- Point of Contact for this solicitation is Christine D
  Contract Specialist, (907) 753-5618,
  e-mail: christine.a.dale@poa02.usace.army.mil
- Contracting Officer is Sandra Davidson.
- Questions for discussion may be asked informall
  but please submit them in writing on the availab
  to ensure incorporation into the meeting minute
  (Please complete form and give to Christine anyt
  during the day.)

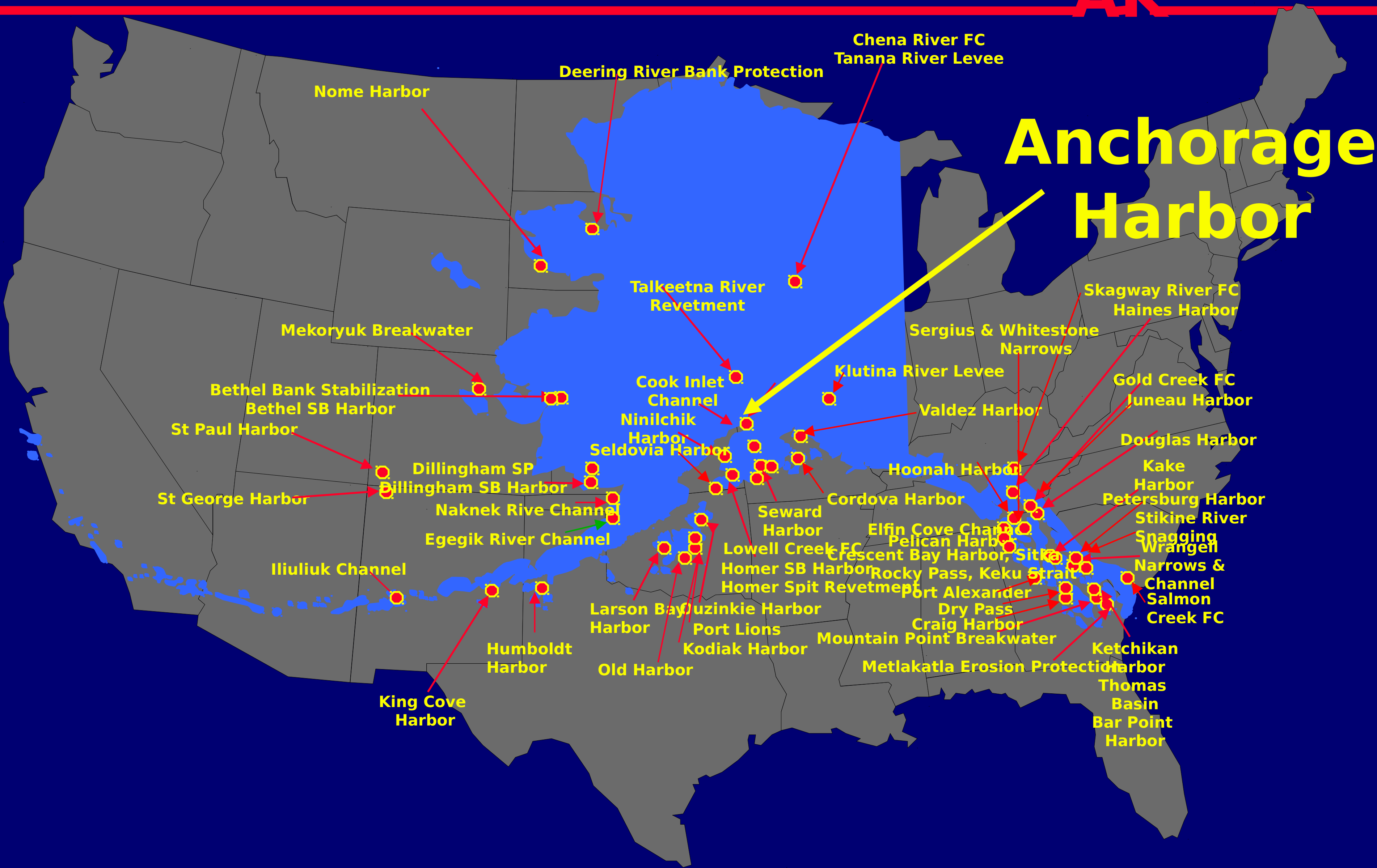
Speaker

KIM KUK
Project Manager

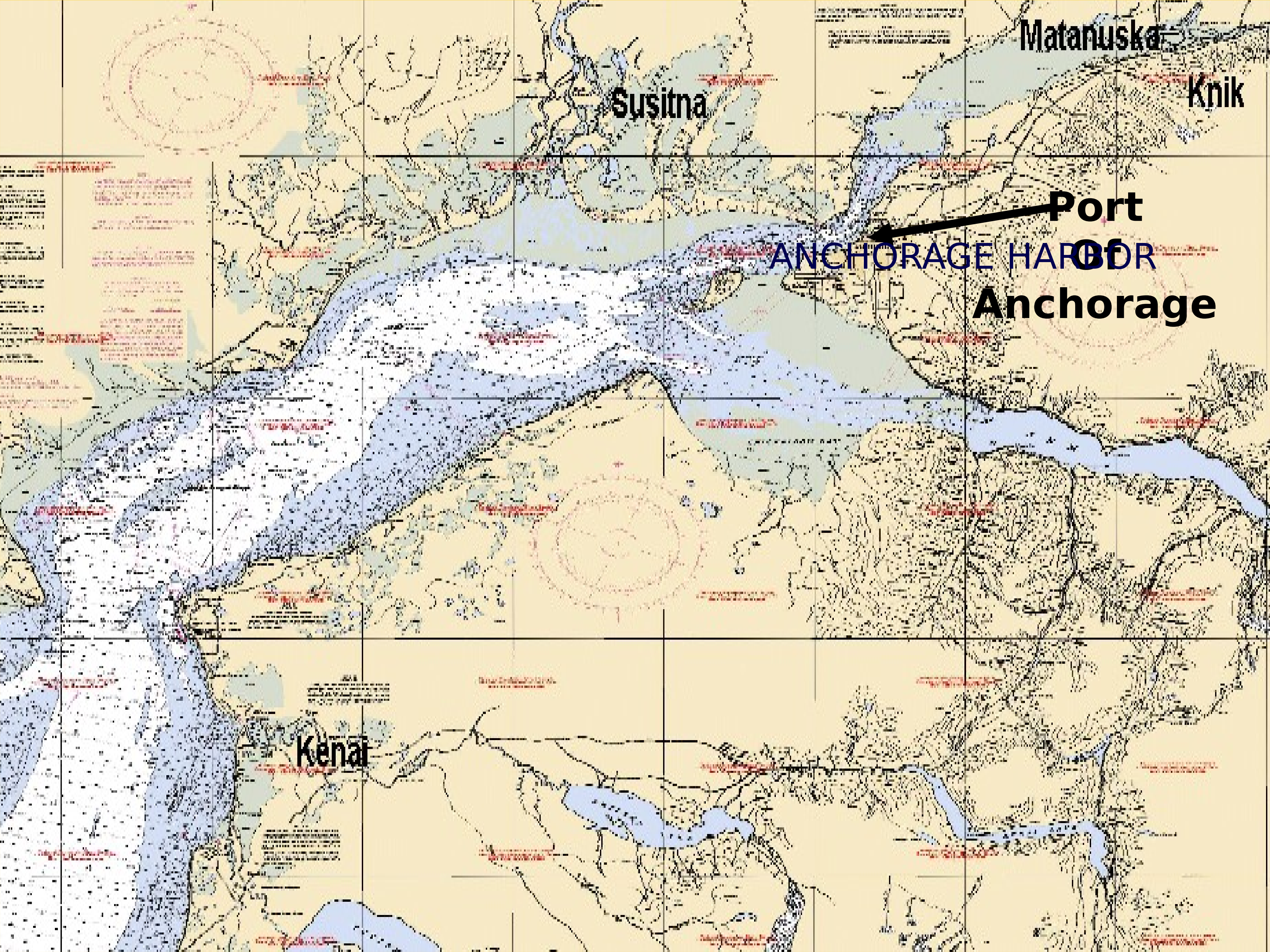
US Army Corps
of Engineers
Alaska District

ALASKA DISTRICT O&M PROJECTS

AK


Anchorage Harbor
Chena River FC
Tanana River Levee
Deering River Bank Protection
Nome Harbor
Talkeetna River Revetment
Mekoryuk Breakwater
Skagway River FC
Haines Harbor
Sergius & Whitestone Narrows
Klutina River Levee
Bethel Bank Stabilization
Bethel SB Harbor
Cook Inlet Channel
Gold Creek FC
Juneau Harbor
Ninilchik Harbor
Valdez Harbor
St Paul Harbor
Seldovia Harbor
Douglas Harbor
Dillingham SP
Dillingham SB Harbor
Hoonah Harbor
Kake Harbor
St George Harbor
Cordova Harbor
Petersburg Harbor
Naknek Rive Channel
Seward Harbor
Stikine River Snagging
Egegik River Channel
Elfin Cove Channel
Pelican Harbor
Wrangell Narrows & Channel
Lowell Creek FC
Crescent Bay Harbor, Sitka
Iliuliuk Channel
Homer SB Harbor
Rocky Pass, Keku Strait
Homer Spit Revetment
Salmon Creek FC
Port Alexander
Larson Bay Harbor
Ouzinkie Harbor
Dry Pass
Craig Harbor
Port Lions
Mountain Point Breakwater
Humboldt Harbor
Kodiak Harbor
Ketchikan Harbor
Old Harbor
Metlakatla Erosion Protection
Thomas Basin
King Cove Harbor
Bar Point Harbor

ANCHORAGE HARBOR



Port Of Anchorage

Matanuska
Knik
Susitna
Kenai

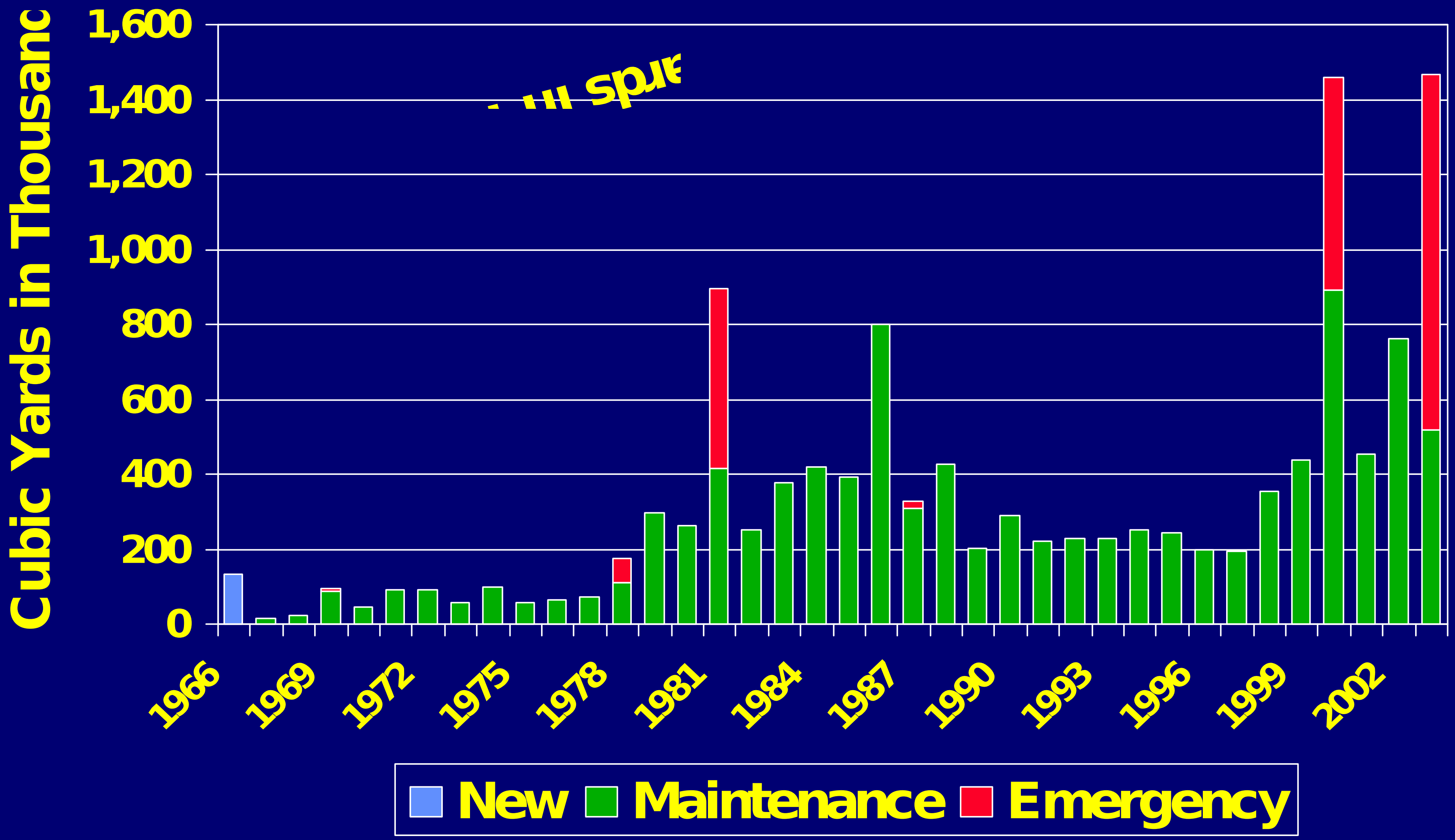
Project History

- **Authorized by the Rivers and Harbors Act, 3 July 1958, as amended.**
- **First dry cargo berth completed in 1961 with –35 feet MLLW approach depth and –10 feet MLLW at the dock face.**
- **Dock extended 1000 feet in 1977 (PL 94-587) to current 3000 foot length and depth at –35 feet MLLW.**
- **New petroleum dock completed in 1993.**
- **Currently serves as the main supply and distribution center for the south-central and interior Alaska including two military bases that lie within the Municipality of Anchorage.**

US Army Corps
of Engineers
Alaska District

Historical Dredge Quantities

AK

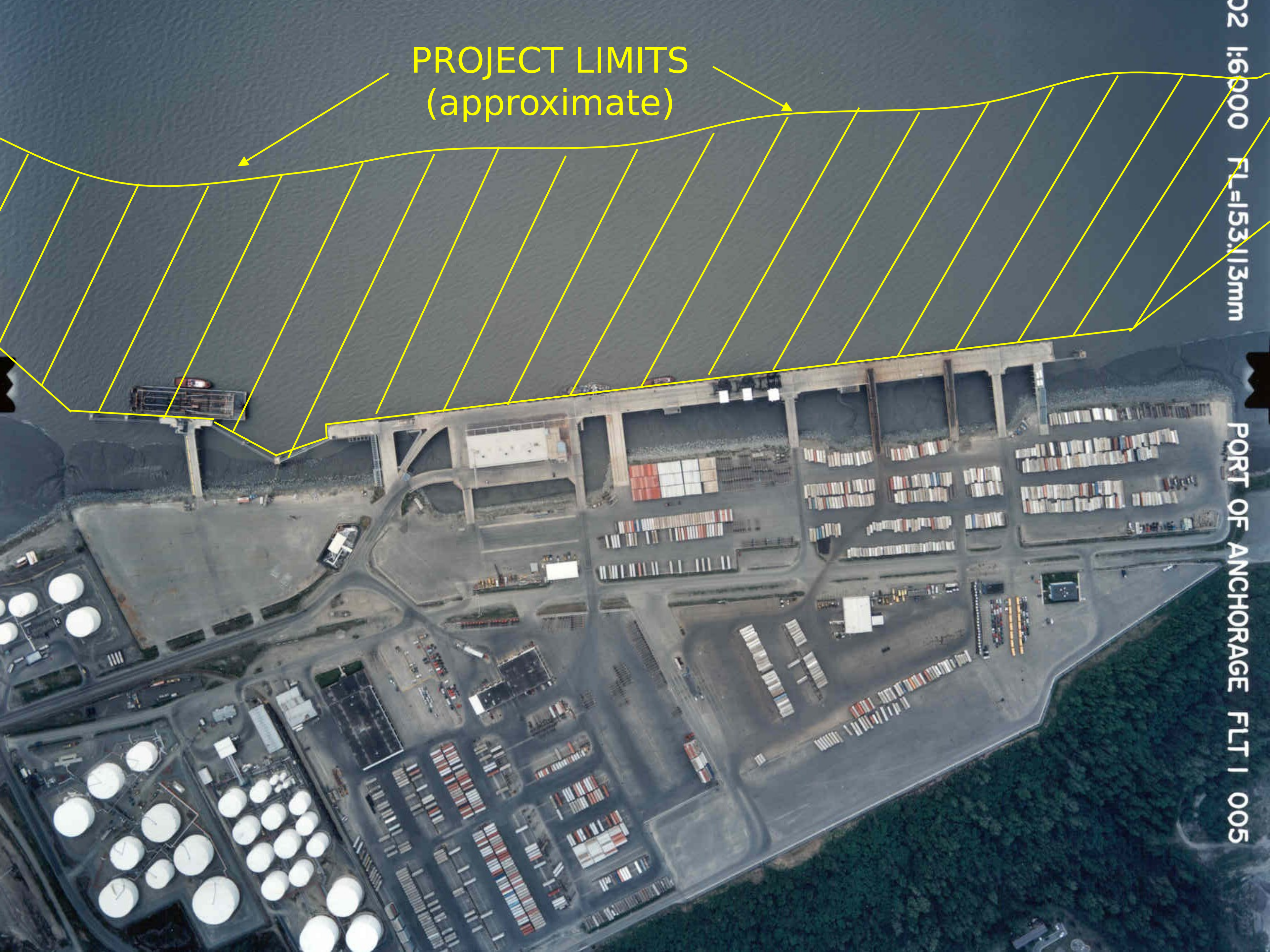


Contract Requirements

- Base + 1 Option Year (Possible Port Expansion)
- “Best Value” RFP versus IFB.
- Increase Proposal Schedule total Quantity from 600,000 to 1 Million CY.
- Area “B” Max Payline increased to –39 FT (MLL
- Clamshell + Hopper w/ phased construction.

Contract Requirements (Cont.)

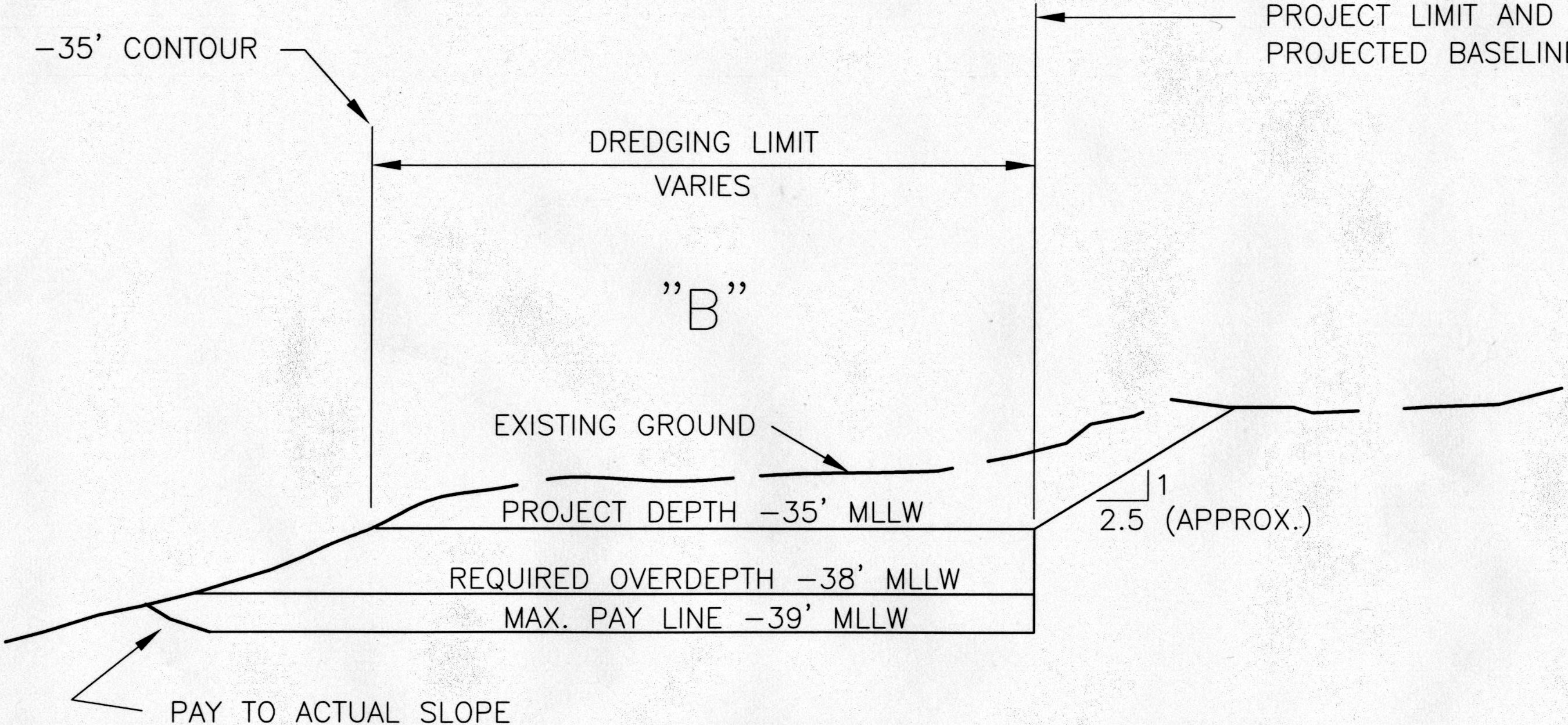
- Payment provisions different for clam and hopp
- Revised equipment certification requirements.
- May need to address standby time.
- Earlier start date.
- Increased survey limits.
- Minimum equipment requirements.



PROJECT LIMITS
(approximate)

02 1:6000 FL=153.113mm
PORT OF ANCHORAGE FLT 1 005

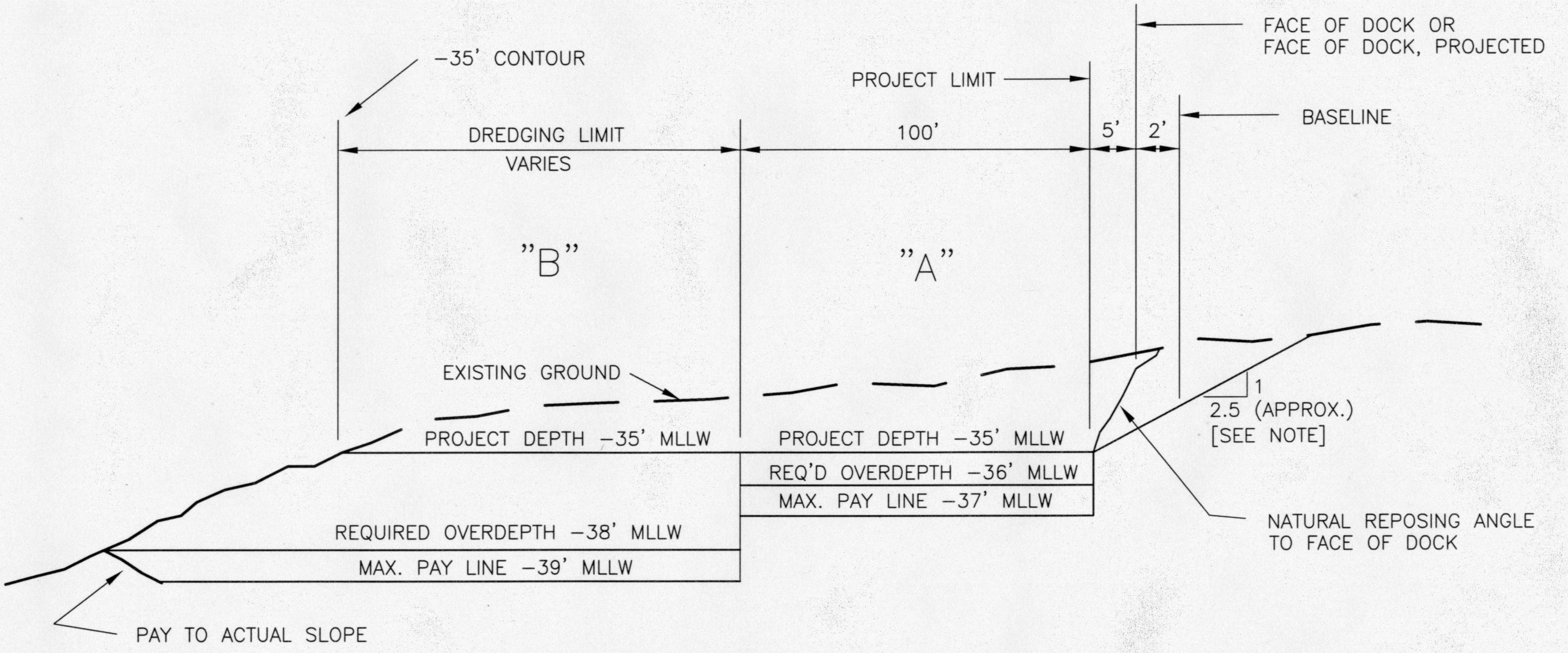
Typical Section A


–35' CONTOUR
PROJECT LIMIT AND
PROJECTED BASELINE
DREDGING LIMIT
VARIES
"B"
EXISTING GROUND
PROJECT DEPTH –35' MLLW
1
2.5 (APPROX.)
REQUIRED OVERDEPTH –38' MLLW
MAX. PAY LINE –39' MLLW
PAY TO ACTUAL SLOPE

TYPICAL SECTION A
NOT TO SCALE 2 2

S. END – FROM CORNER ② TO CORNER ① TO INTERSECTION OF –35 MLLW CONTOU
WITH STA. 20+00 PROJECTED THROUGH CORNER ①.

Typical Section B



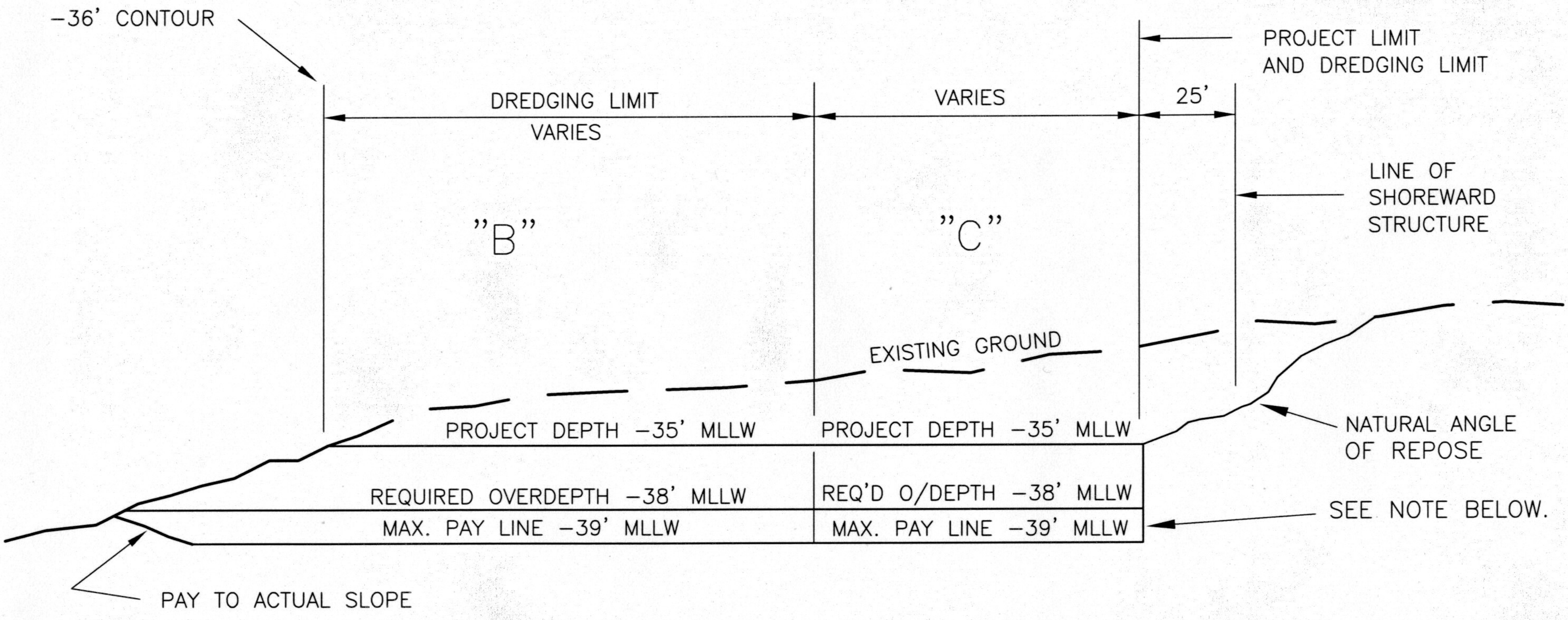
FACE OF DOCK OR
FACE OF DOCK, PROJECTED
−35' CONTOUR
PROJECT LIMIT
BASELINE
DREDGING LIMIT
VARIES
100'
5'
2'
"B"
"A"
EXISTING GROUND
1
2.5 (APPROX.)
[SEE NOTE]
PROJECT DEPTH −35' MLLW
PROJECT DEPTH −35' MLLW
REQ'D OVERDEPTH −36' MLLW
MAX. PAY LINE −37' MLLW
NATURAL REPOSING ANGLE
TO FACE OF DOCK
REQUIRED OVERDEPTH −38' MLLW
MAX. PAY LINE −39' MLLW
PAY TO ACTUAL SLOPE

TYPICAL SECTION B
NOT TO SCALE 2 3 3

CORNER ⑪ TO CORNER ⑦

NOTE: APPROXIMATE 1 ON 2.5 SIDE SLOPES IN AREAS NOT ADJACENT TO DOCKS.

Typical Section C

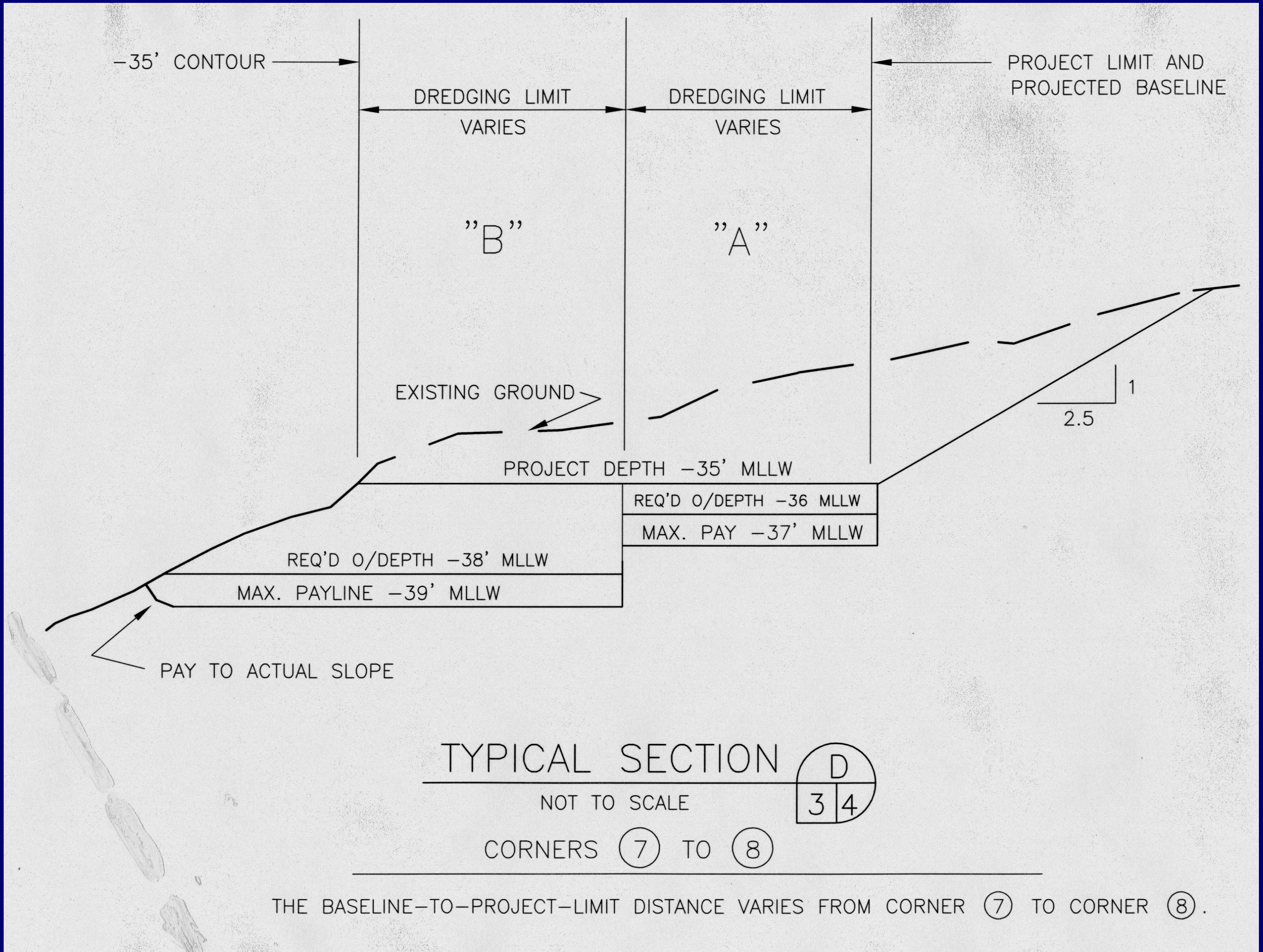

-36' CONTOUR
PROJECT LIMIT
AND DREDGING LIMIT
DREDGING LIMIT
VARIES
VARIES
25'
LINE OF
SHOREWARD
STRUCTURE
"B"
"C"
EXISTING GROUND
PROJECT DEPTH -35' MLLW
PROJECT DEPTH -35' MLLW
NATURAL ANGLE
OF REPOSE
REQUIRED OVERDEPTH -38' MLLW
REQ'D O/DEPTH -38' MLLW
SEE NOTE BELOW.
MAX. PAY LINE -39' MLLW
MAX. PAY LINE -39' MLLW
PAY TO ACTUAL SLOPE

TYPICAL SECTION C
2 3
NOT TO SCALE

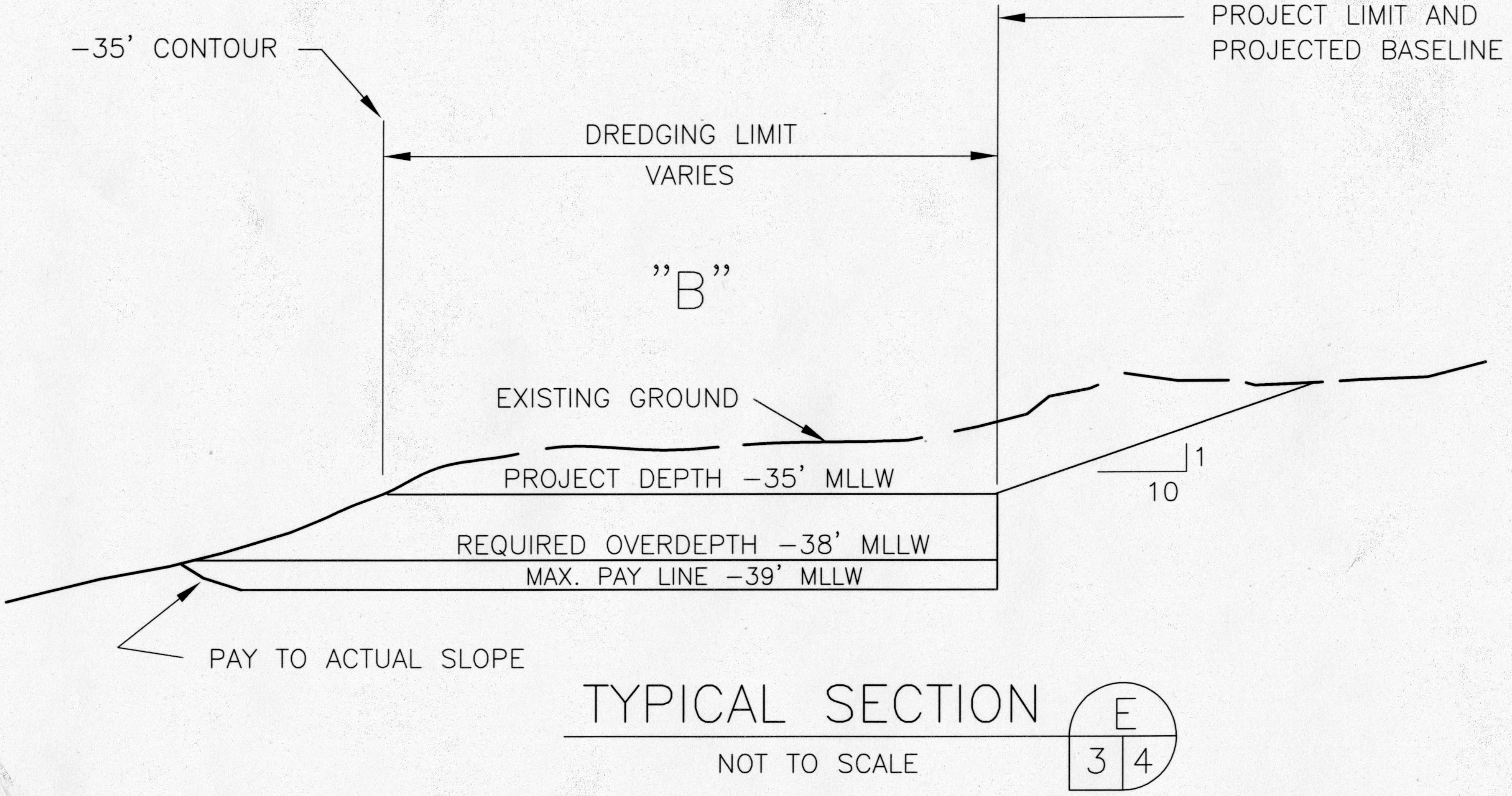
CORNER ④ TO CORNER ⑪

NOTE: WOODEN PILING MAY BE ENCOUNTERED NEAR PROJECT CORNERS 4-5-10.
THE MATERIAL BELOW -39' MLLW AND ALL THE MATERIAL EAST OF THE BASELINE
MAY BE VIRGIN MATERIAL.

Typical Section D


-35' CONTOUR
PROJECT LIMIT AND
PROJECTED BASELINE
DREDGING LIMIT
VARIES
DREDGING LIMIT
VARIES
"B"
"A"
EXISTING GROUND
1
2.5
PROJECT DEPTH -35' MLLW
REQ'D O/DEPTH -36 MLLW
MAX. PAY -37' MLLW
REQ'D O/DEPTH -38' MLLW
MAX. PAYLINE -39' MLLW
PAY TO ACTUAL SLOPE
TYPICAL SECTION
NOT TO SCALE
D
3
4
CORNERS ⑦ TO ⑧
THE BASELINE-TO-PROJECT-LIMIT DISTANCE VARIES FROM CORNER ⑦ TO CORNER ⑧.

Typical Section E


−35' CONTOUR
PROJECT LIMIT AND
PROJECTED BASELINE
DREDGING LIMIT
VARIES
"B"
EXISTING GROUND
PROJECT DEPTH −35' MLLW
1
10
REQUIRED OVERDEPTH −38' MLLW
MAX. PAY LINE −39' MLLW
PAY TO ACTUAL SLOPE
TYPICAL SECTION
E
3
4
NOT TO SCALE

N. END – FROM CORNER ⑧ TO CORNER ⑨ TO INTERSECTION OF −35 MLLW CONTOUR WITH STA. 70+00 PROJECTED THROUGH CORNER ⑨.

Speaker

ALLEN CHURCHILL
Chief of Operations

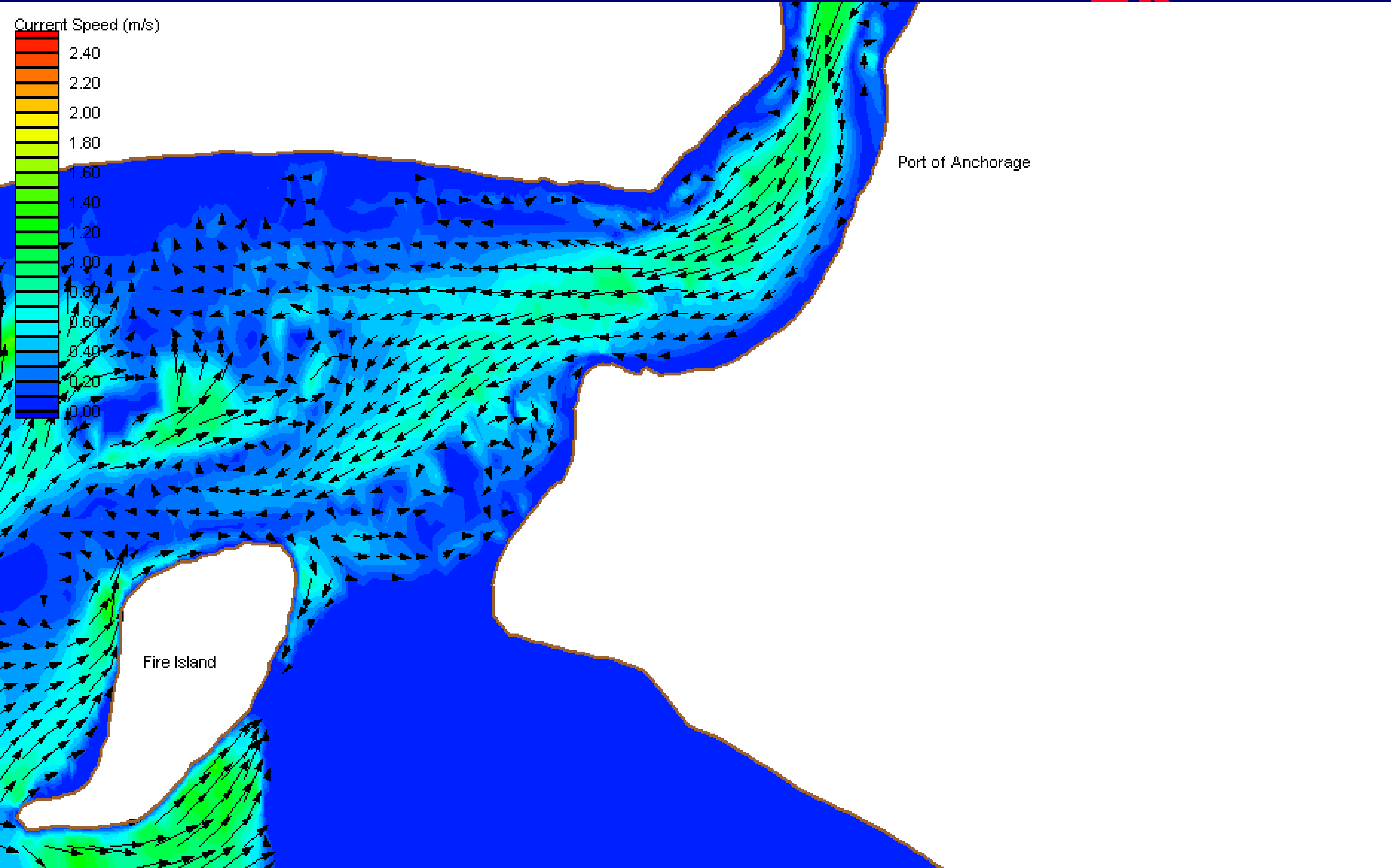
Hydrodynamics of Knik Arm

Tide Ranges:

Mean	25.9 feet
Diurnal	28.8 feet
Extreme	40.7 feet

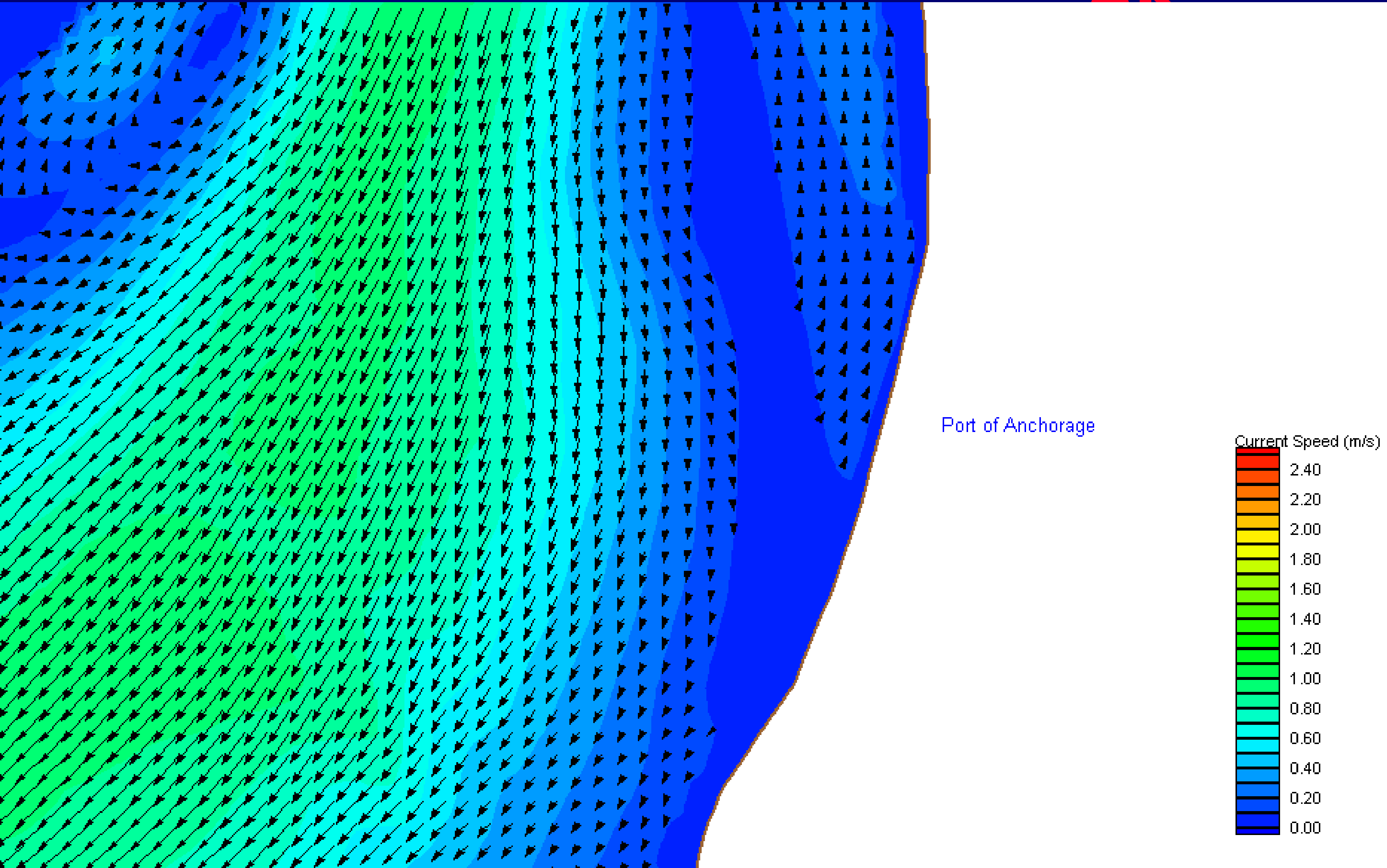
US Army Corps of Engineers
Alaska District

Hydrodynamics of Knik Arm

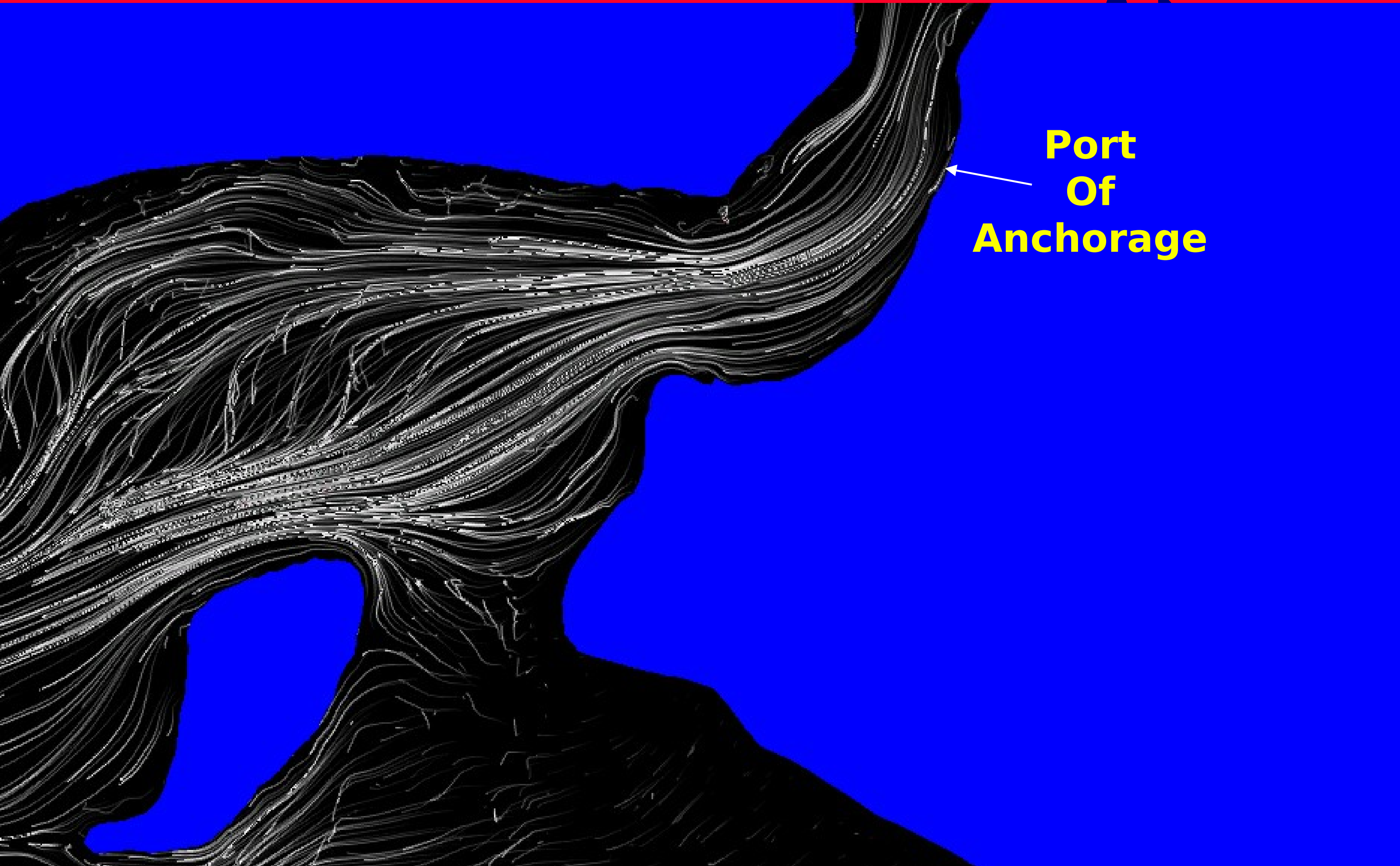

Current Speed (m/s)
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Port of Anchorage
Fire Island

US Army Corps of Engineers
Alaska District

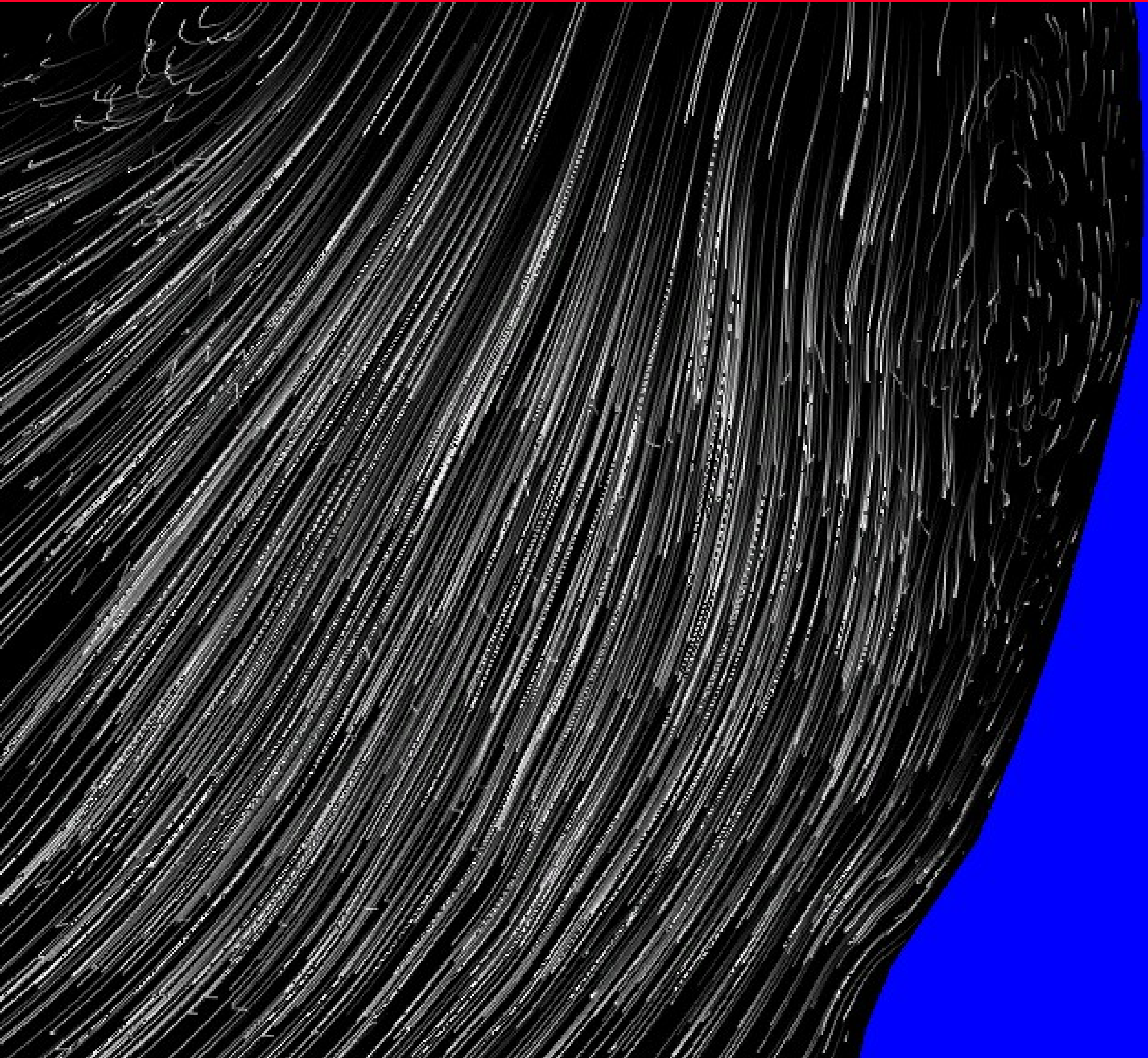
Hydrodynamics of Knik Arm

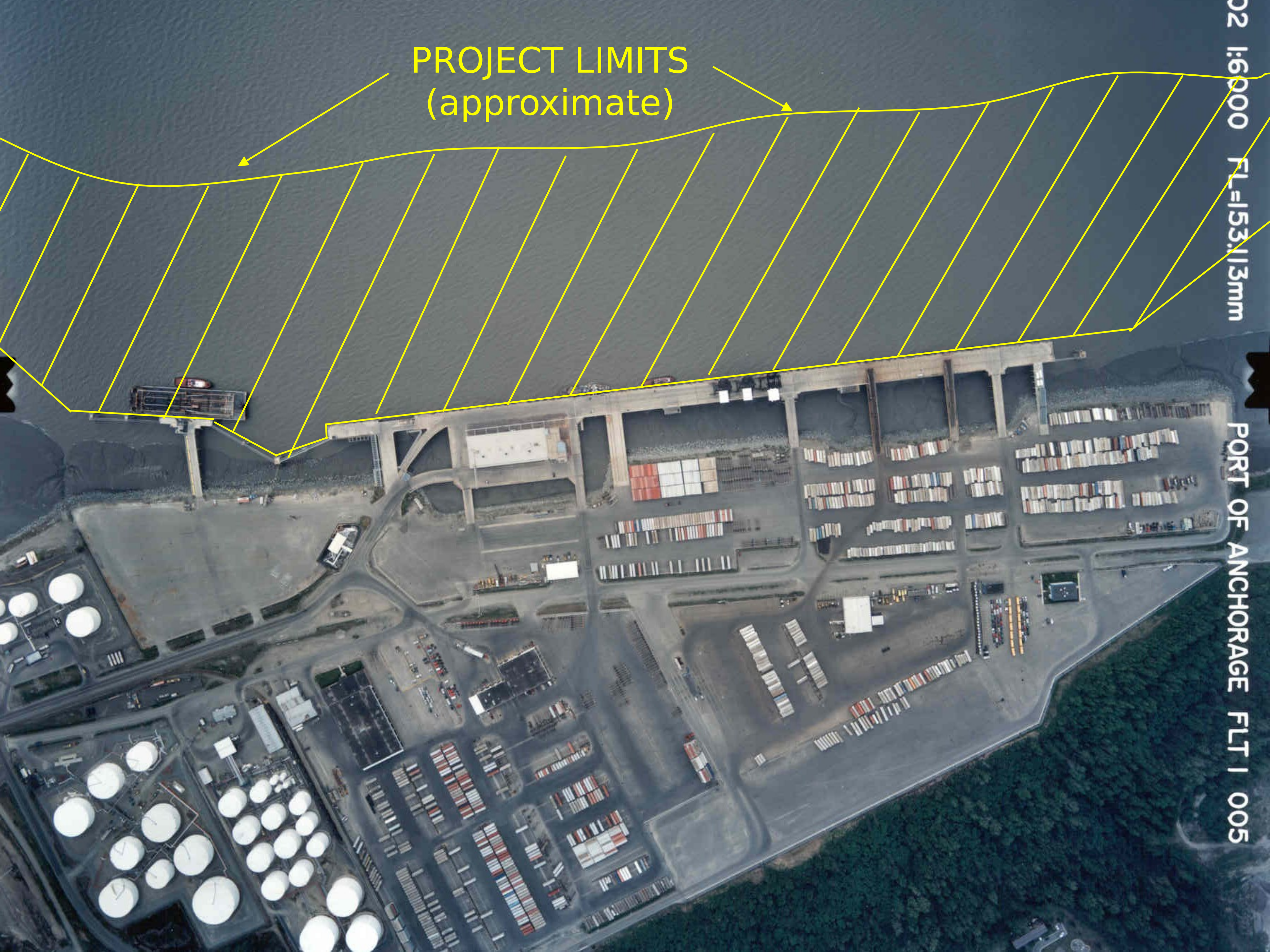

Port of Anchorage
Current Speed (m/s)
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00

Hydrodynamics of Knik Arm

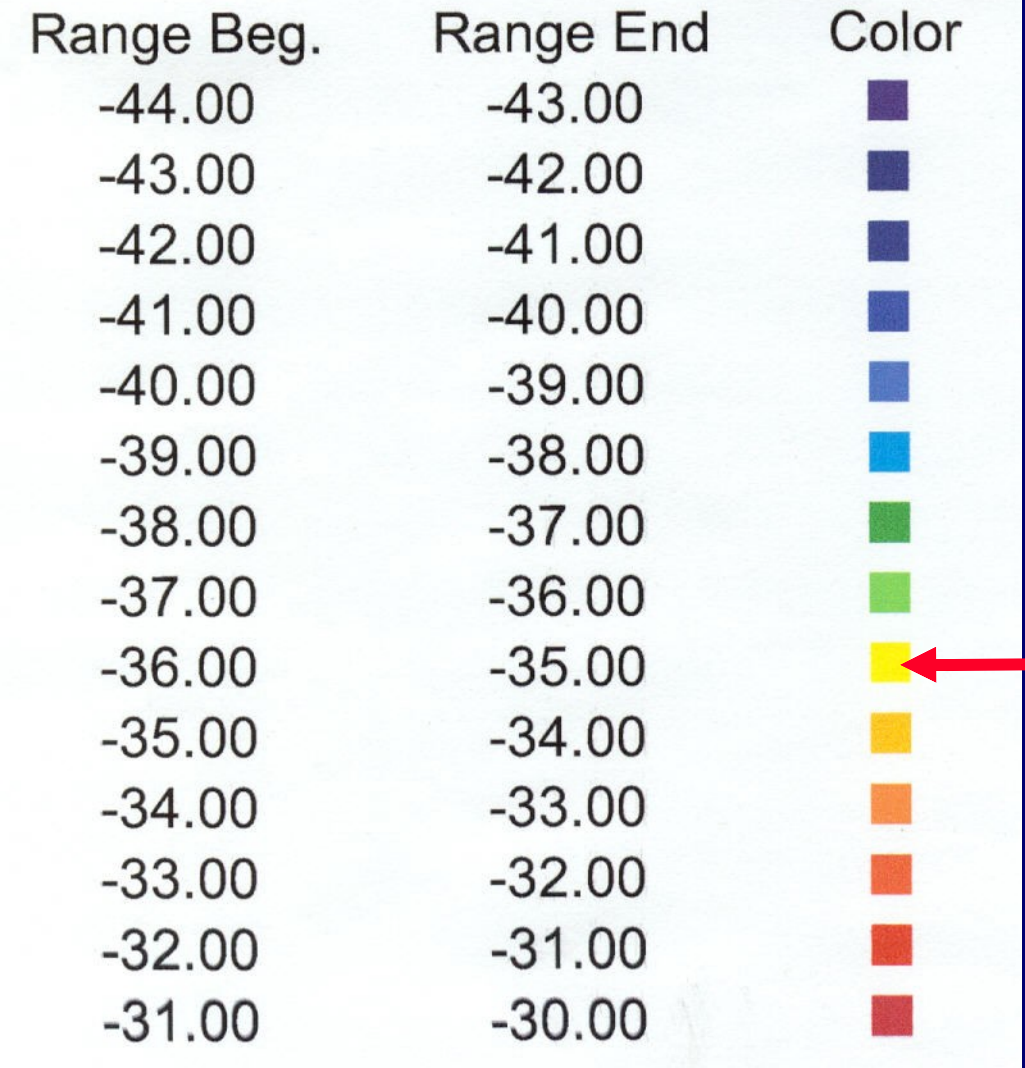

**Port
Of
Anchorage**

Hydrodynamics of Knik Arm


Port
Of
Anchorage


PROJECT LIMITS
(approximate)
02 1:6000 FL=153.113mm
PORT OF ANCHORAGE FLT 1 005

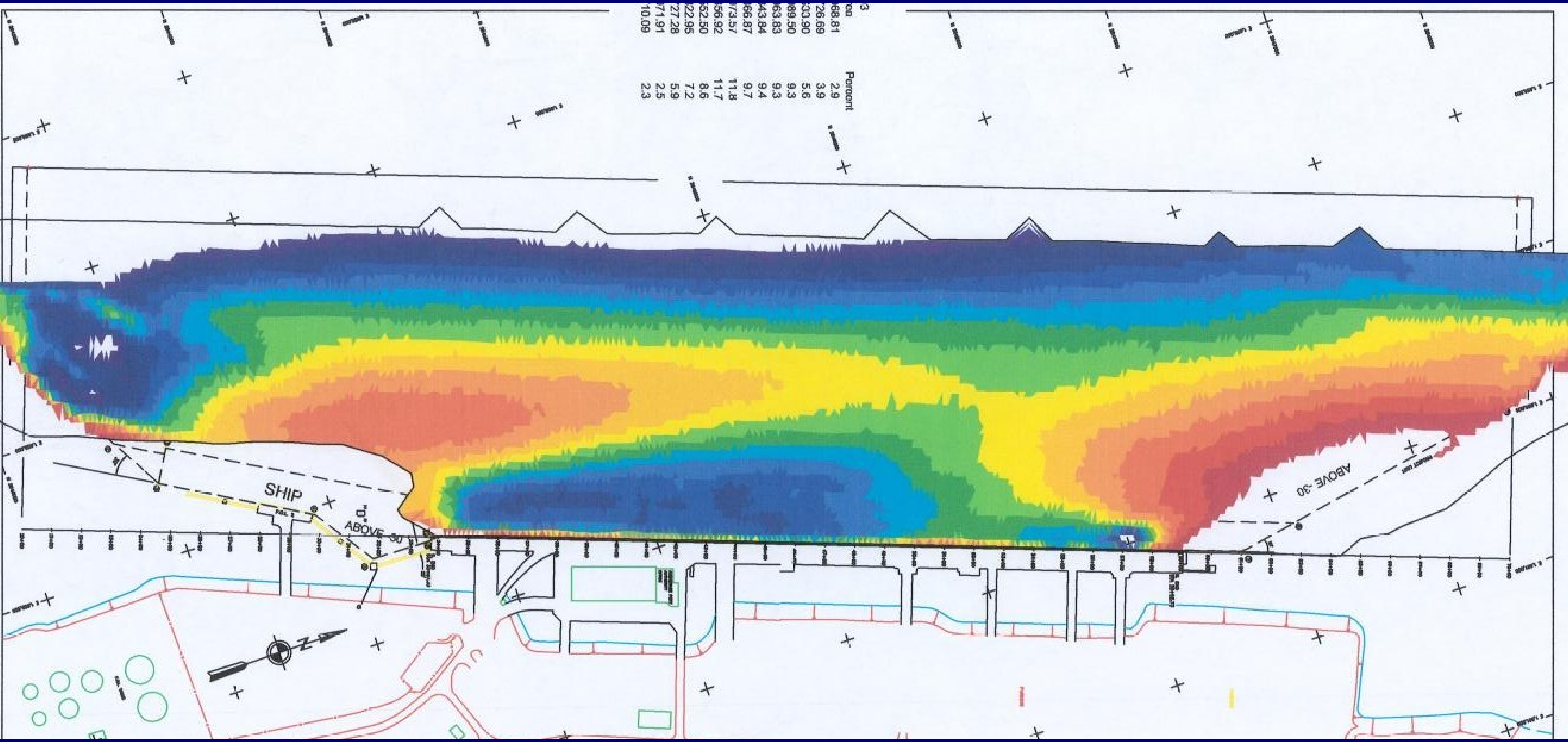
Survey Legend



FT (MLLW) Range Beg.	FT (MLLW) Range End	Color
-44.00	-43.00	🟪
-43.00	-42.00	🟦
-42.00	-41.00	🟦
-41.00	-40.00	🟦
-40.00	-39.00	🟦
-39.00	-38.00	🟦
-38.00	-37.00	🟩
-37.00	-36.00	🟩
-36.00	-35.00	🟨
-35.00	-34.00	🟧
-34.00	-33.00	🟧
-33.00	-32.00	🟧
-32.00	-31.00	🟥
-31.00	-30.00	🟥

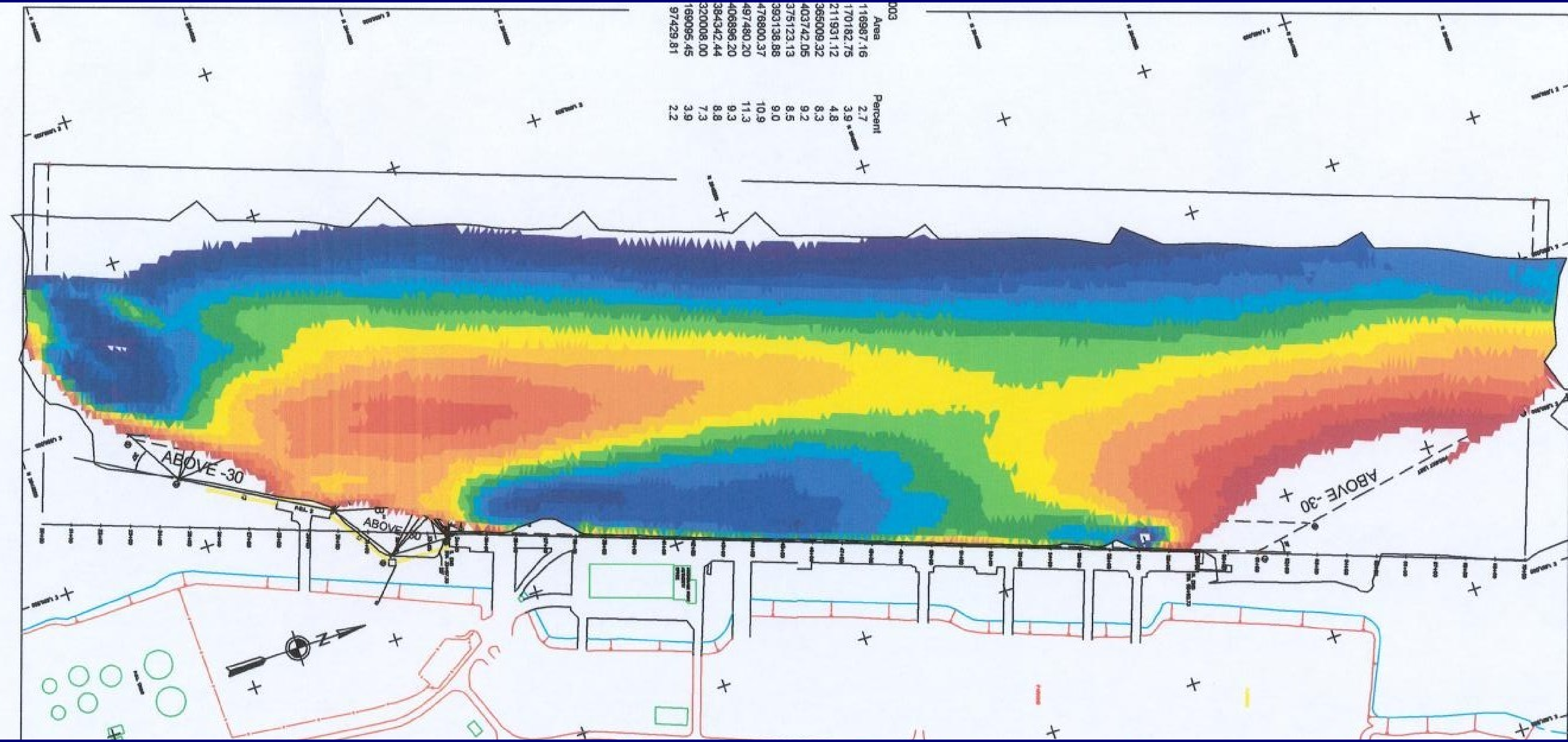
Project Depth
-35 FT (MLLW)

28-29 May 2003
Pre-dredge Conditions


Percent
2.9
3.9
5.6
9.3
9.3
9.4
9.7
11.8
11.7
8.6
7.2
5.9
2.5
2.3
SHIP
"B"
ABOVE -30
ABOVE -30

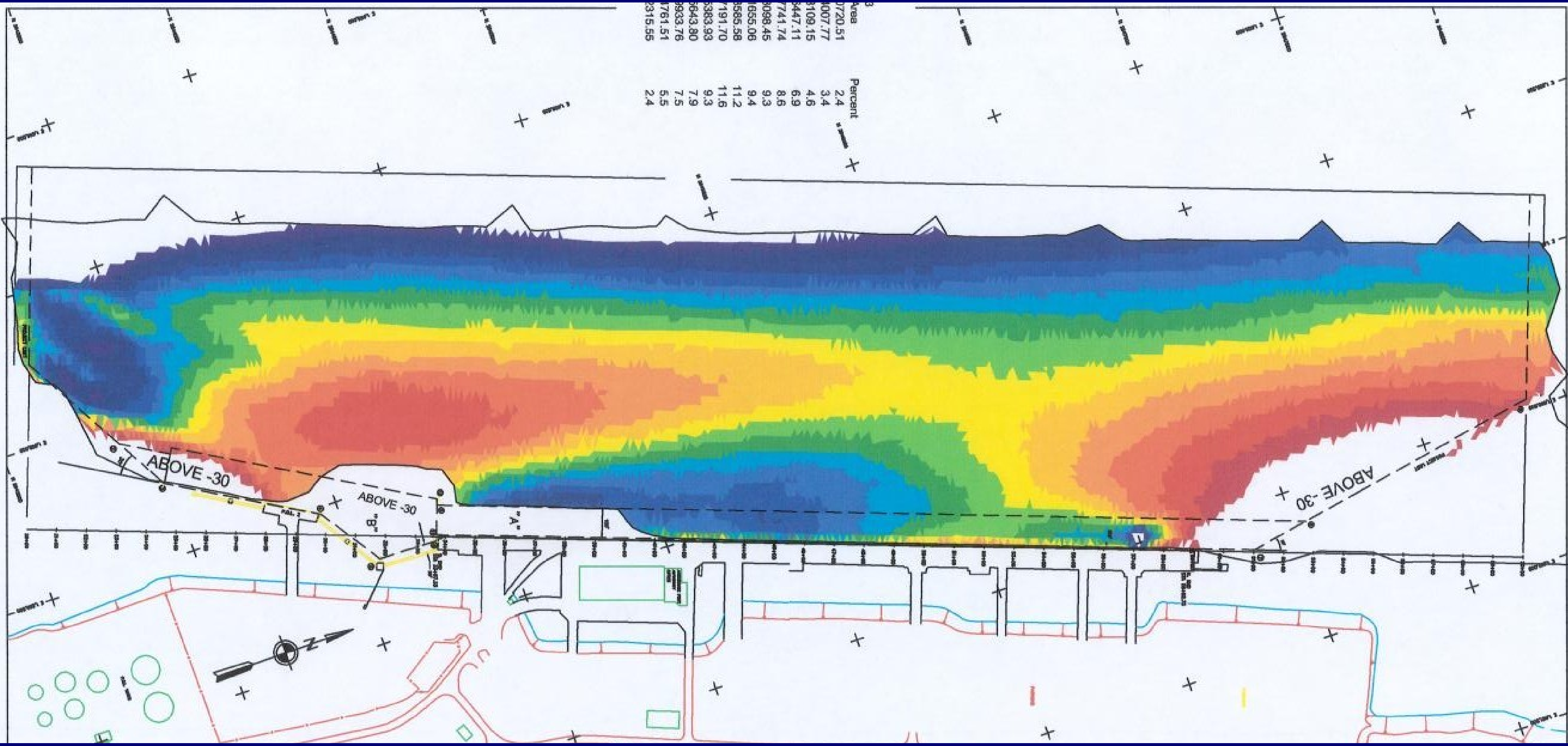
US Army Corps of Engineers
Alaska District

4 June 2003
Pre-dredge Conditions



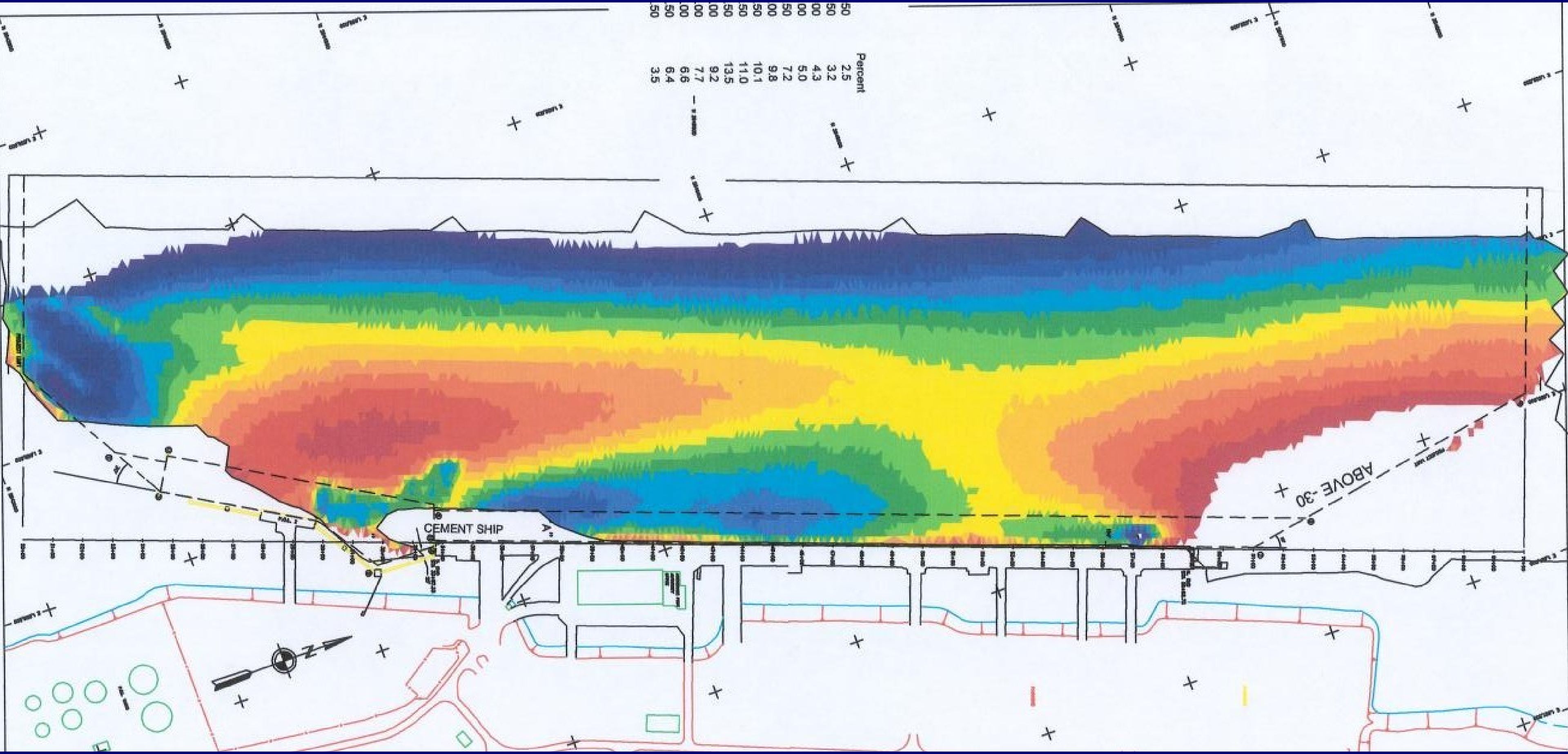
Area	Percent
116987.16	2.7
170182.75	3.9
211931.12	4.8
365009.32	8.3
403742.05	9.2
375123.13	8.5
393138.88	9.0
476800.37	10.9
497480.20	11.3
406896.20	9.3
384342.44	8.8
320008.00	7.3
169095.45	3.9
97429.81	2.2

11 June 2003
First Day of Clamshell Dredging

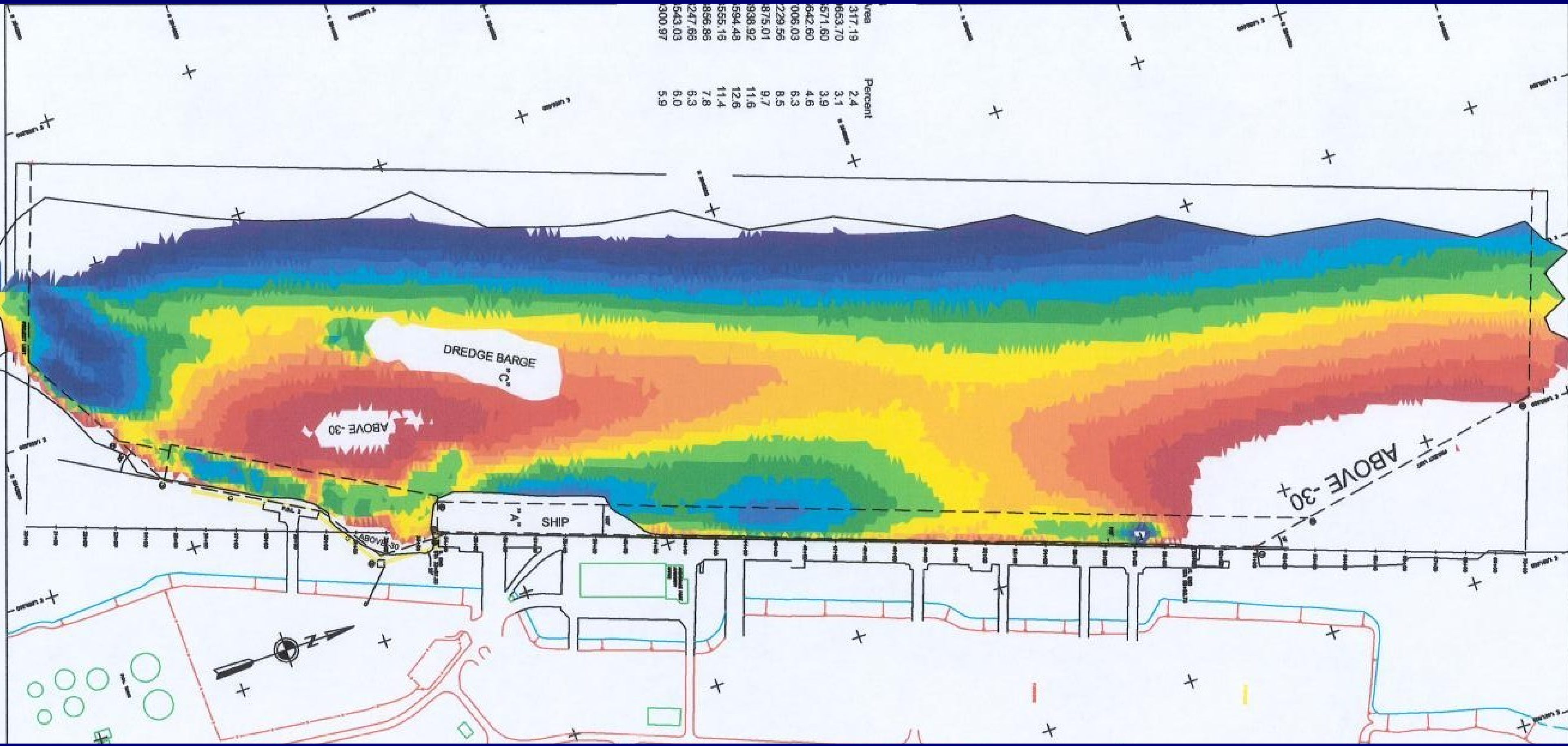

Area
0720.51
1007.77
3109.15
3447.11
7741.74
3098.45
1655.06
3585.58
7191.70
3383.93
3643.80
9933.76
1761.51
2315.55
Percent
2.4
3.4
4.6
6.9
8.6
9.3
9.4
11.2
11.6
9.3
7.9
7.5
5.5
2.4
ABOVE -30
ABOVE -30
"B"
"A"
ABOVE -30
N

US Army Corps of Engineers
Alaska District

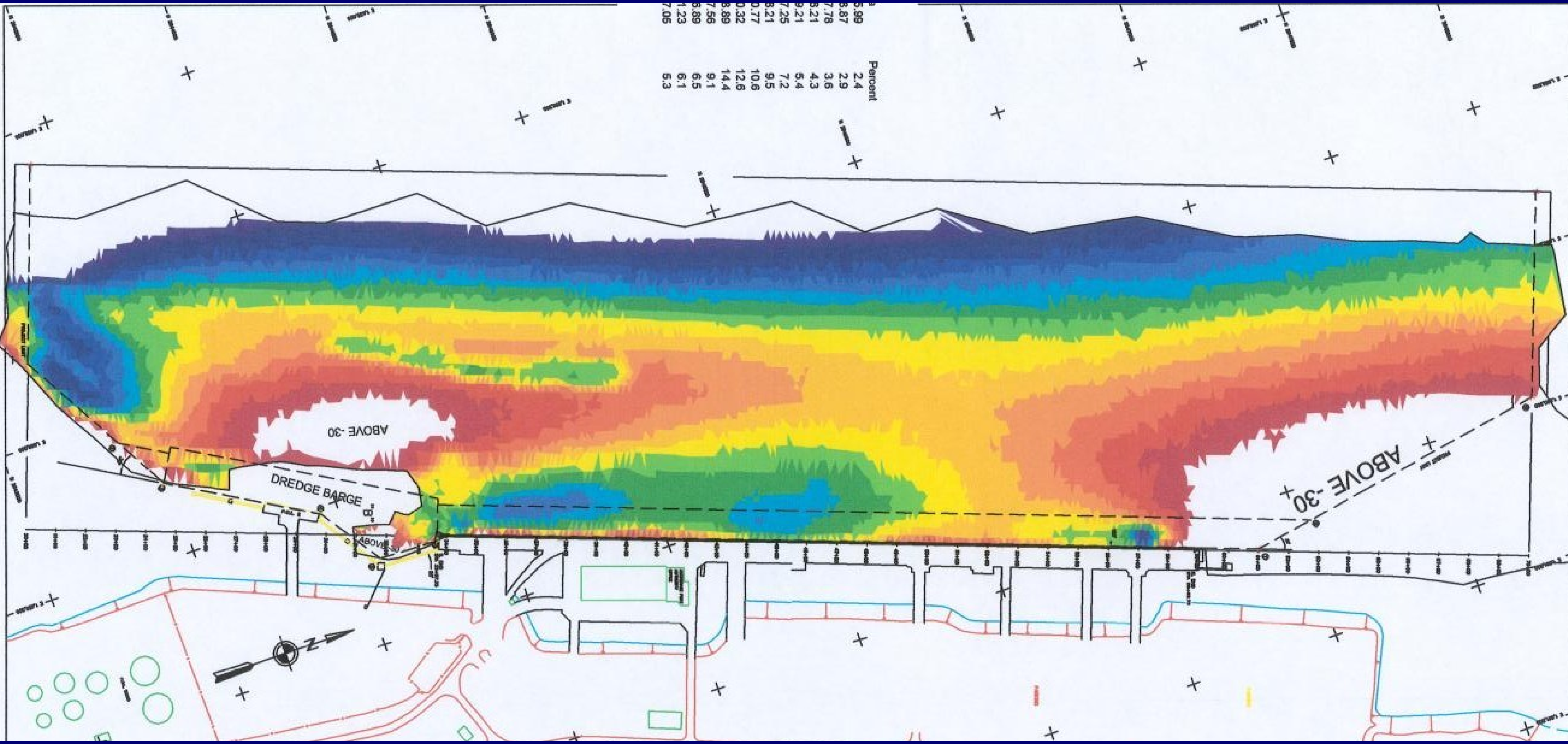
18 June 2003
One week of Clamshell Dredging


Percent
2.5
3.2
4.3
5.0
7.2
9.8
10.1
11.0
13.5
9.2
7.7
6.6
6.4
3.5
CEMENT SHIP
ABOVE -30
N

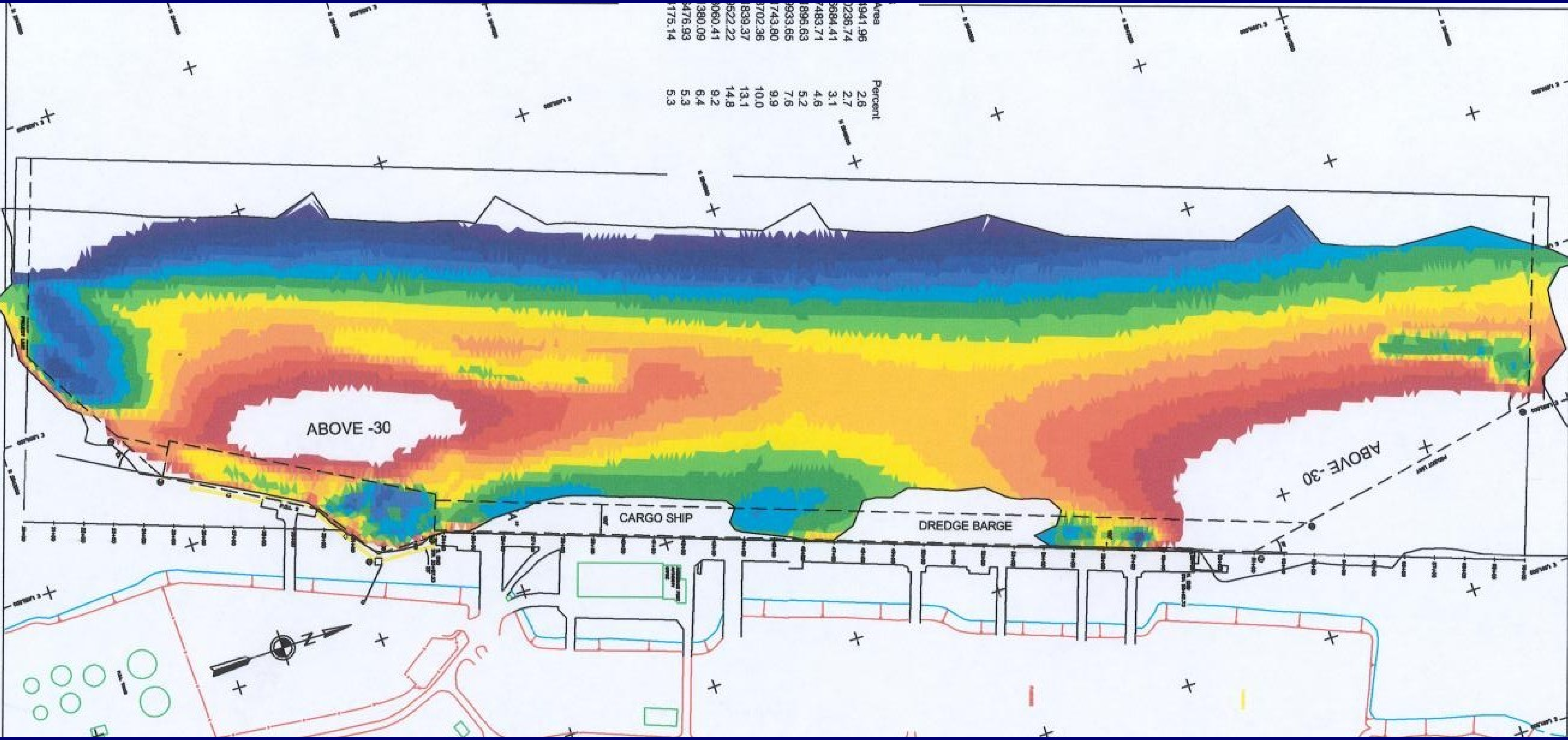
25 June 2003
2 weeks of Clamshell Dredging


DREDGE BARGE "C"
ABOVE -30
"A"
SHIP
ABOVE -30
ABOVE -30
Percent

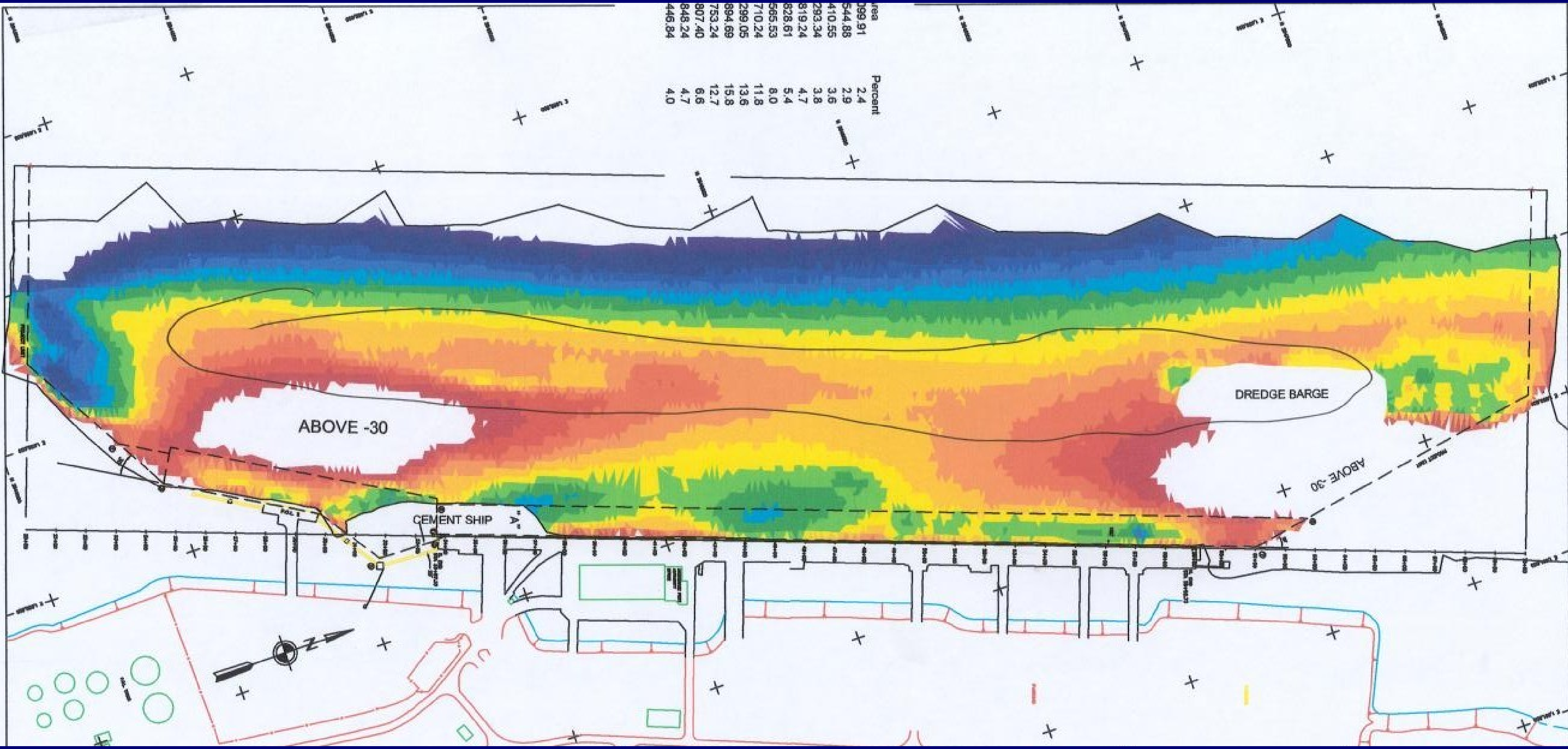
2 July 2003
3 weeks of Clamshell Dredging


Percent
2.4
2.9
3.6
4.3
5.4
7.2
9.5
10.6
12.6
14.4
9.1
6.5
6.1
5.3
ABOVE -30
DREDGE BARGE
ABOVE -30

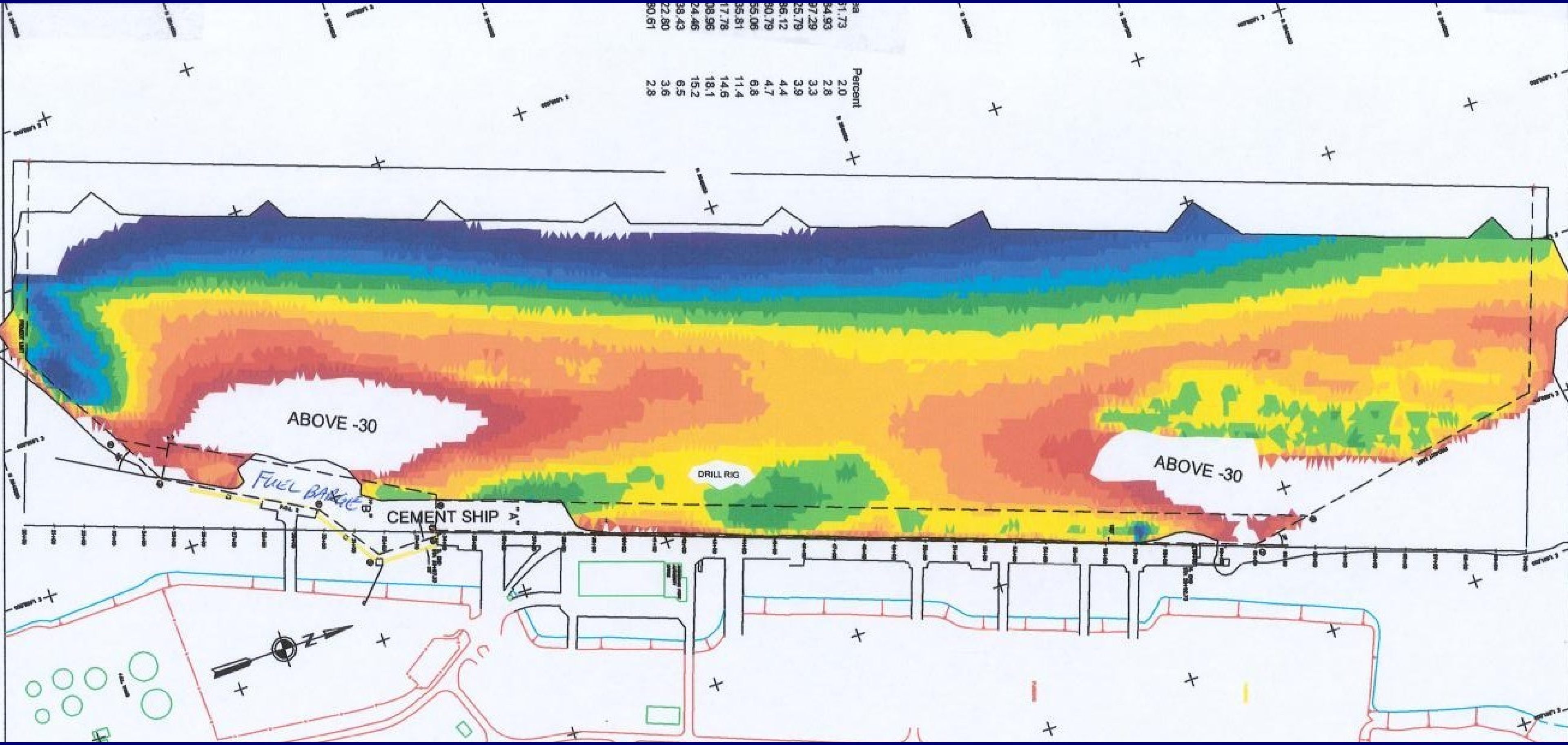
9 July 2003
4 weeks of Clamshell Dredging


Percent
2.6
2.7
3.1
4.6
5.2
7.6
9.9
10.0
13.1
14.8
9.2
6.4
5.3
5.3
ABOVE -30
CARGO SHIP
DREDGE BARGE
ABOVE -30

17 July 2003
5 weeks of Clamshell Dredging

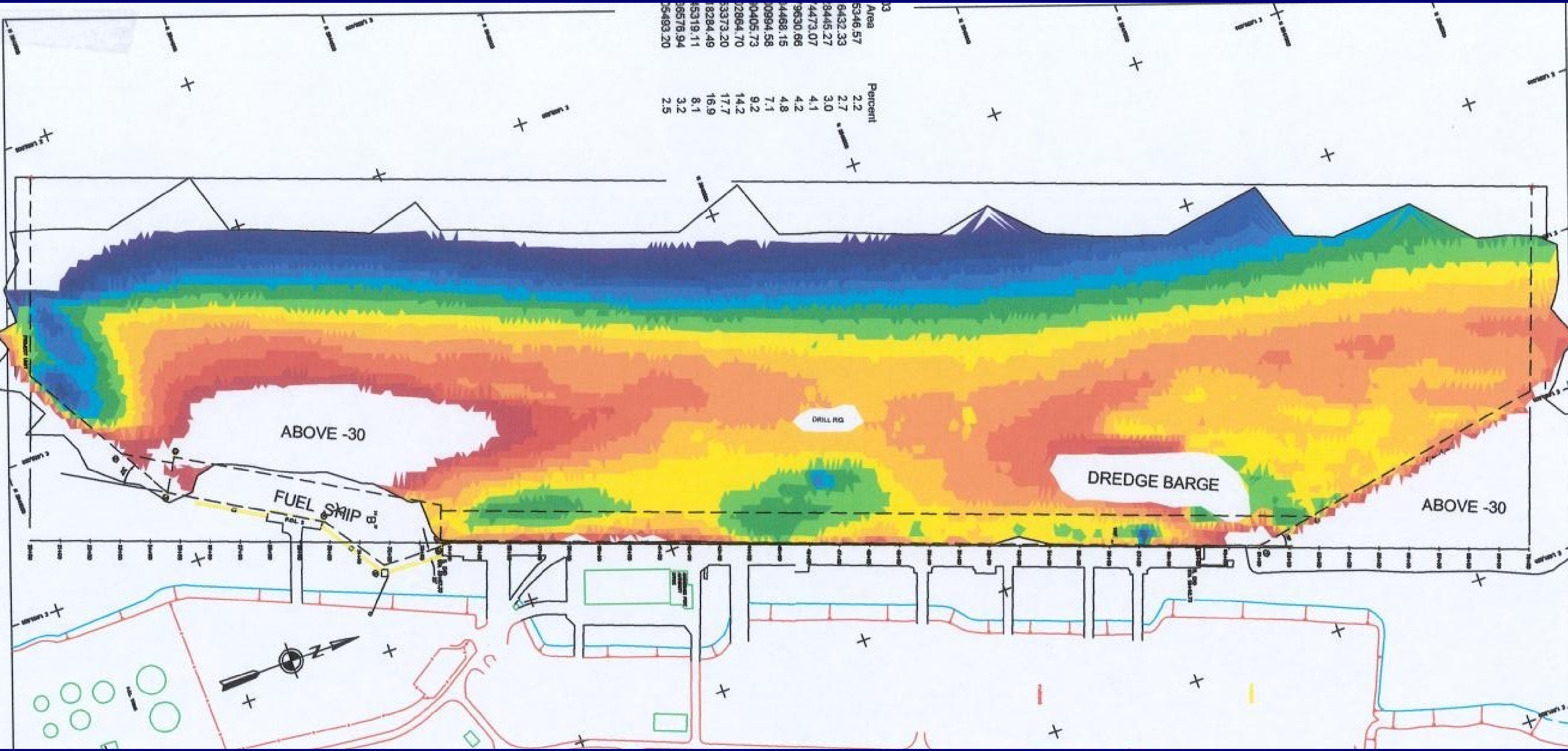

ABOVE -30
DREDGE BARGE
CEMENT SHIP
ABOVE -30

24 July 2003
6 weeks of Clamshell Dredging


ABOVE -30
DRILL RIG
ABOVE -30
FUEL BARGE
CEMENT SHIP
Percent

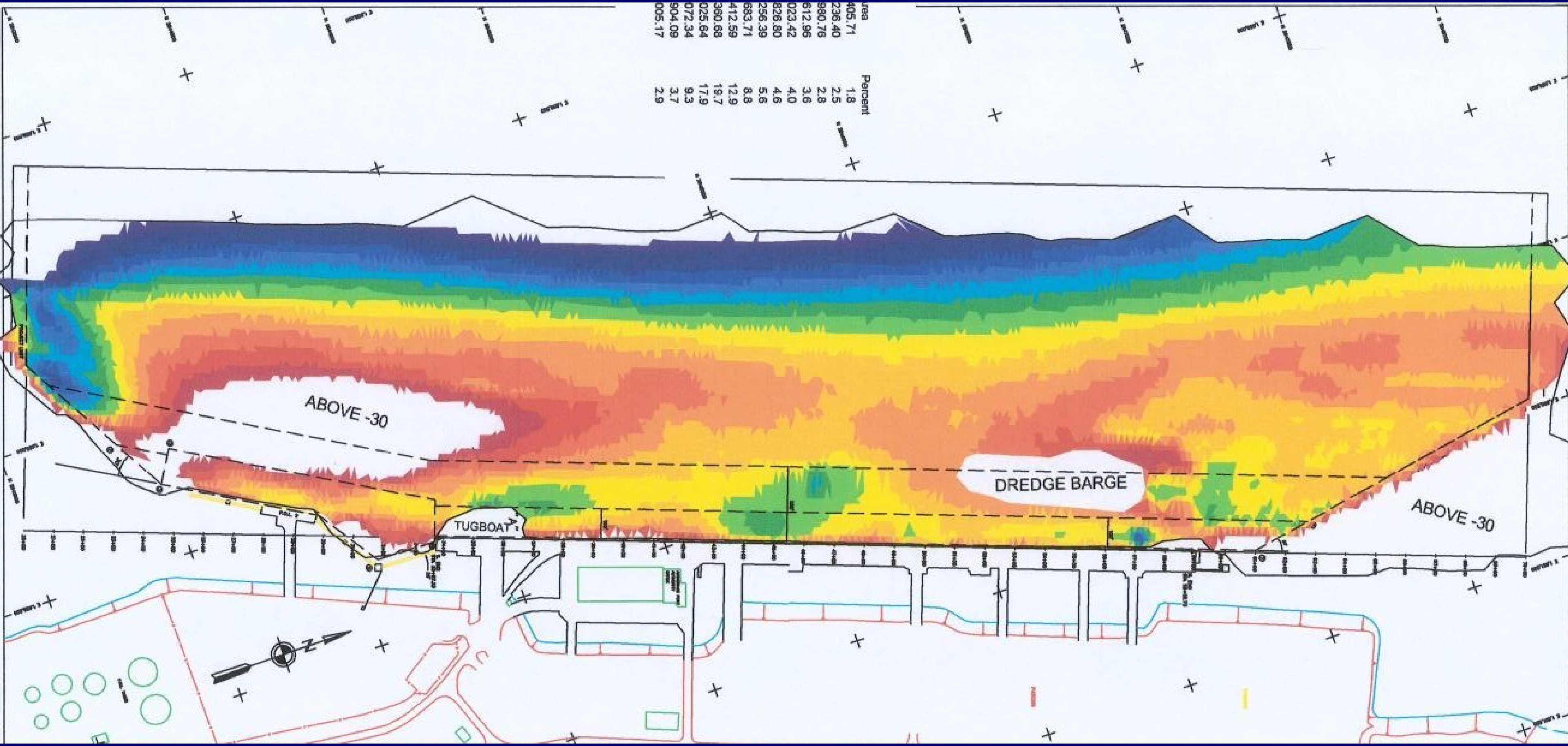
US Army Corps of Engineers
Alaska District

31 July 2003
7 weeks of Clamshell Dredging

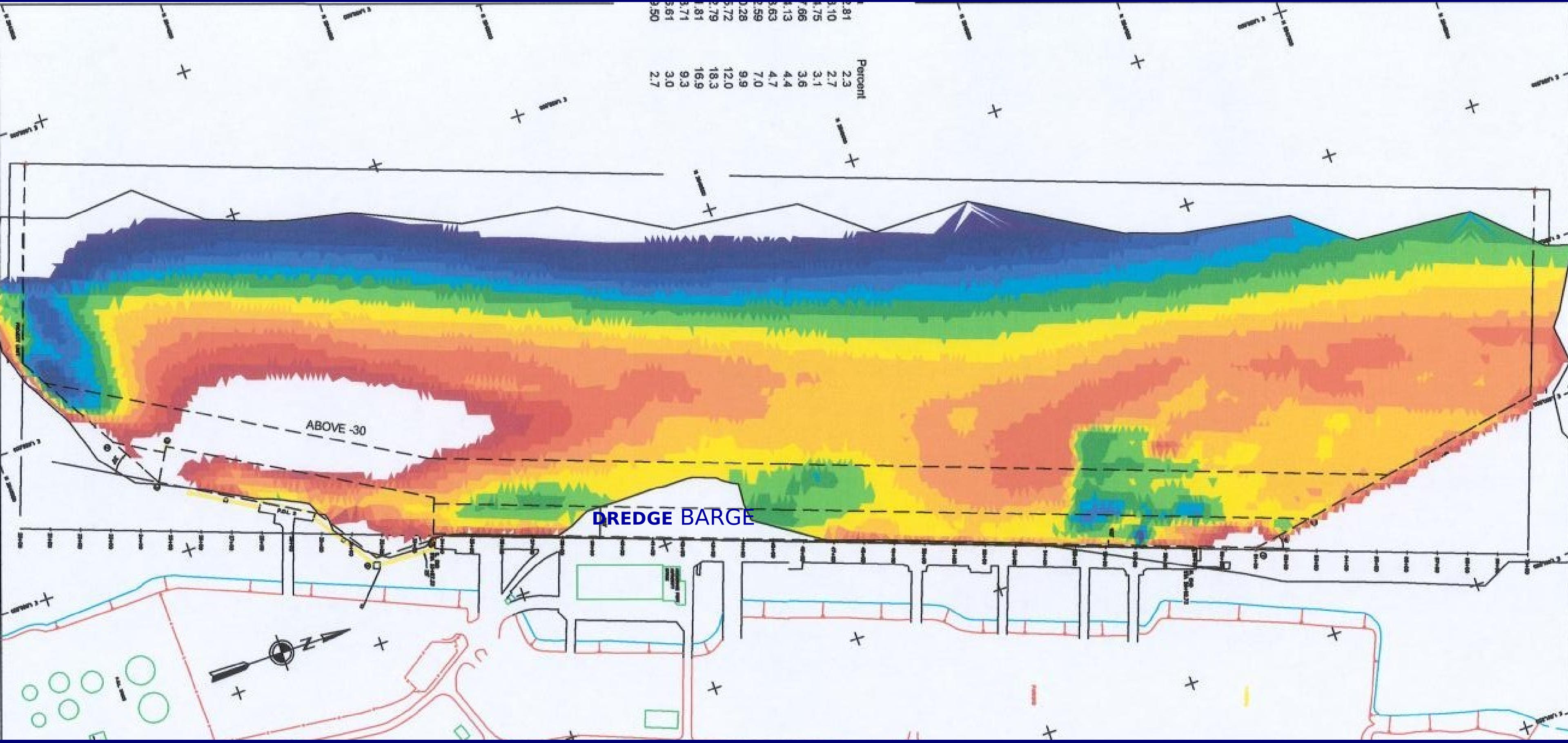

ABOVE -30
DRILL RIG
DREDGE BARGE
FUEL SHIP "B"
ABOVE -30

US Army Corps of Engineers
Alaska District

1 August 2003
7 weeks and 1 day of Clamshell Dredging

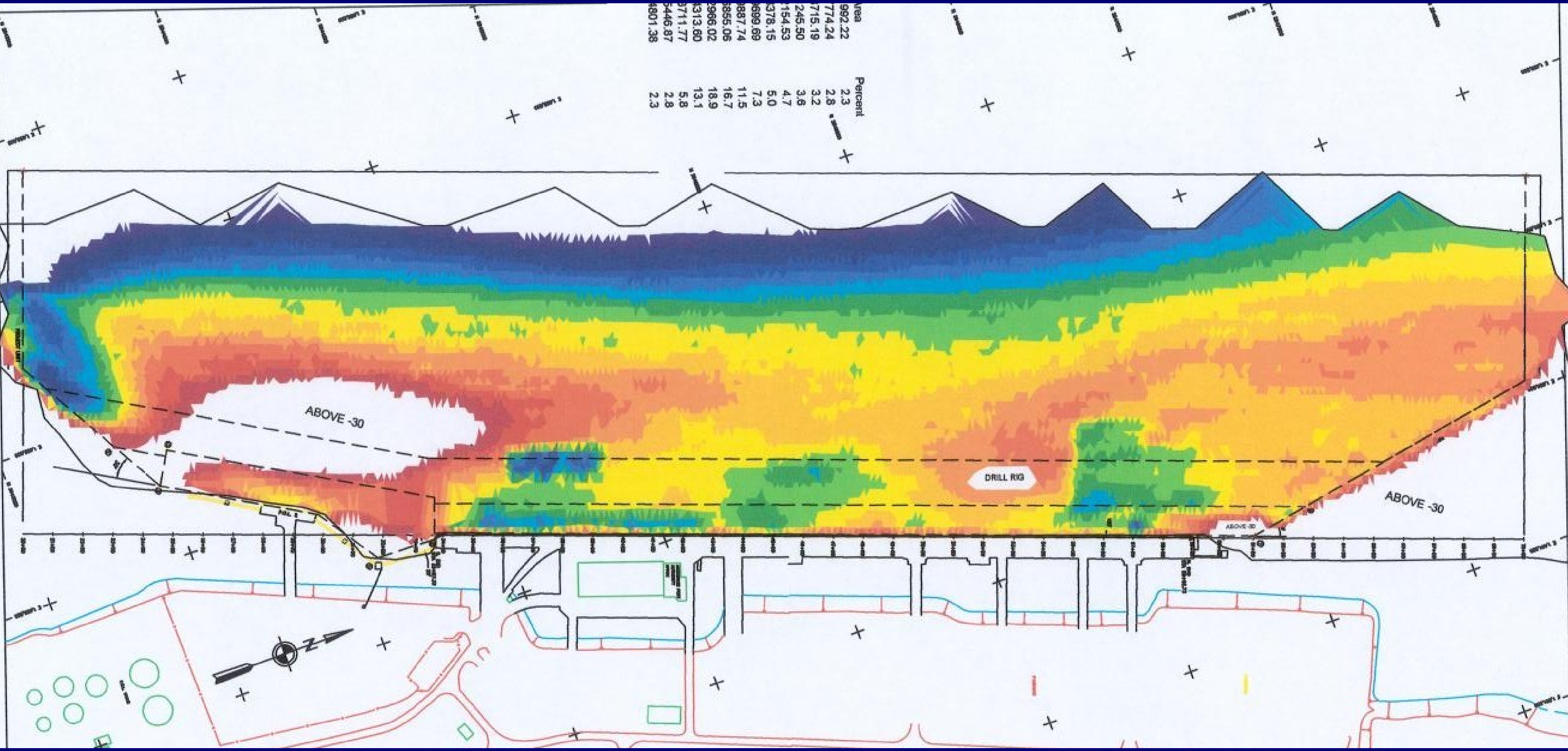

ABOVE -30
DREDGE BARGE
TUGBOAT
ABOVE -30

4 August 2003
First Day of Hopper Dredging

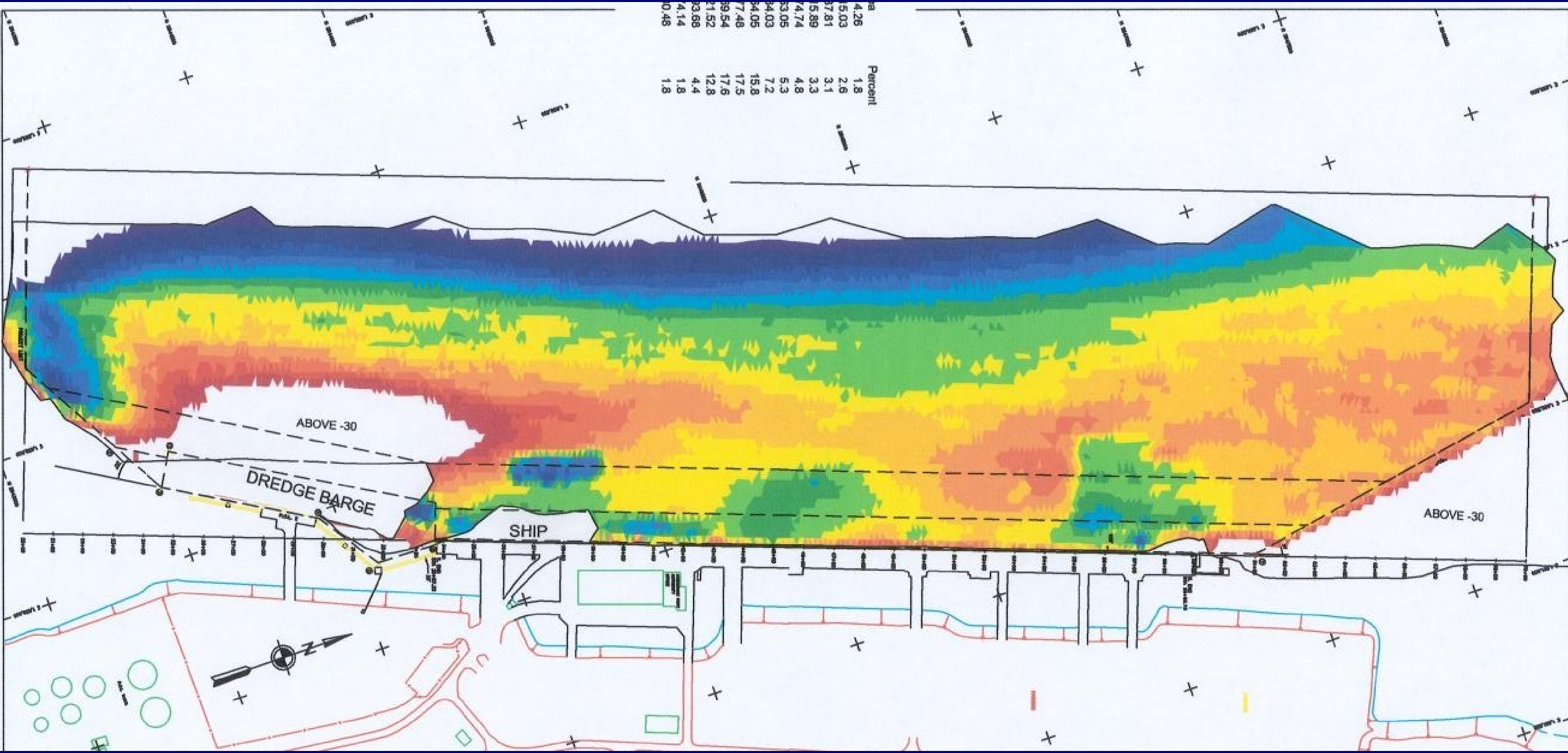

Percent
2.3
2.7
3.1
3.6
4.4
4.7
7.0
9.9
12.0
18.3
16.9
9.3
3.0
2.7
ABOVE -30
DREDGE BARGE

US Army Corps
of Engineers
Alaska District

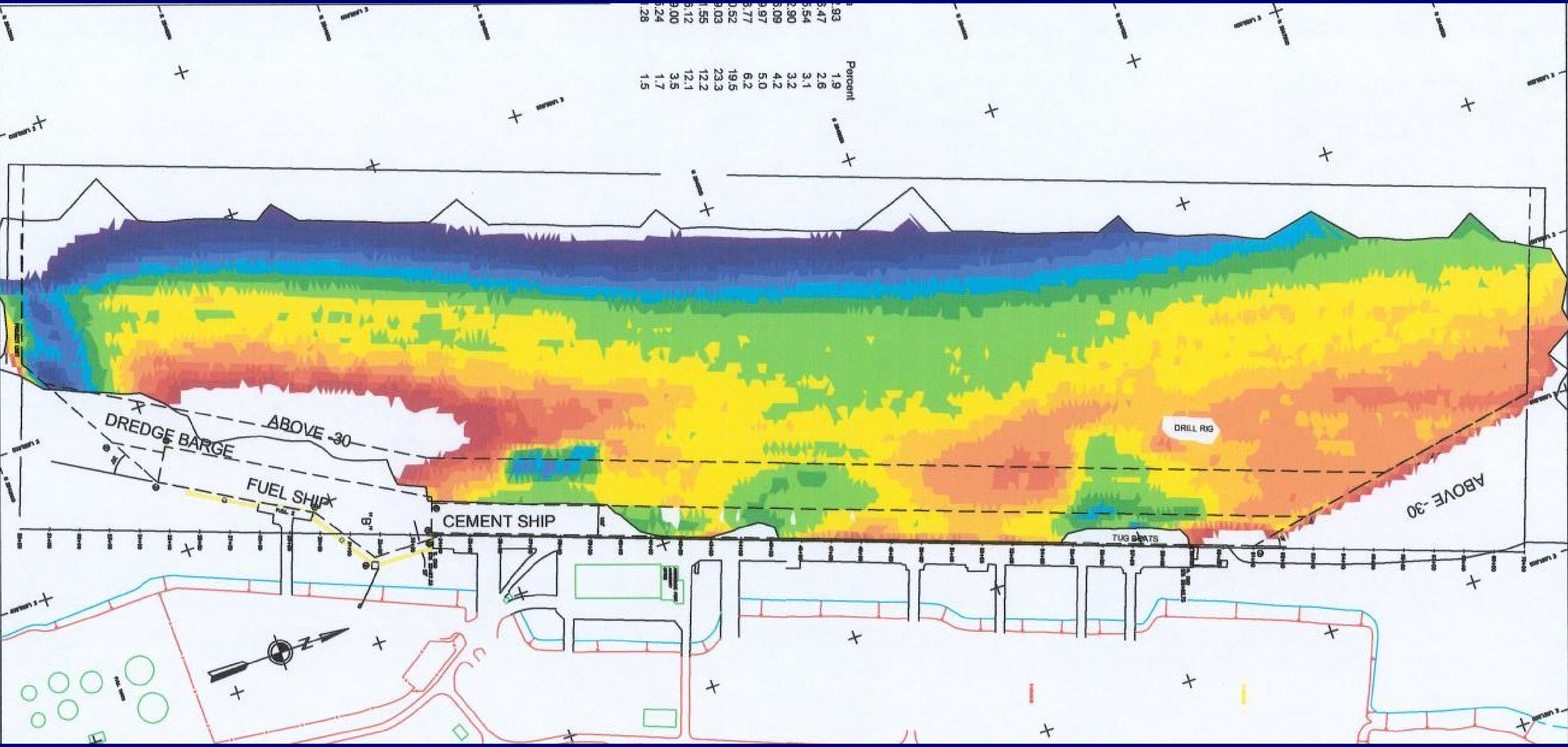
6 August 2003
2 days of Hopper Dredging


rea
Percent
992.22 2.3
774.24 2.8
715.19 3.2
245.50 3.6
154.53 4.7
378.15 5.0
699.69 7.3
887.74 11.5
855.06 16.7
966.02 18.9
313.60 13.1
711.77 5.8
446.87 2.8
801.38 2.3
ABOVE -30
DRILL RIG
ABOVE -30
ABOVE -30
N

8 August 2003
4 days of Hopper Dredging


ABOVE -30
DREDGE BARGE
SHIP
ABOVE -30
Percent

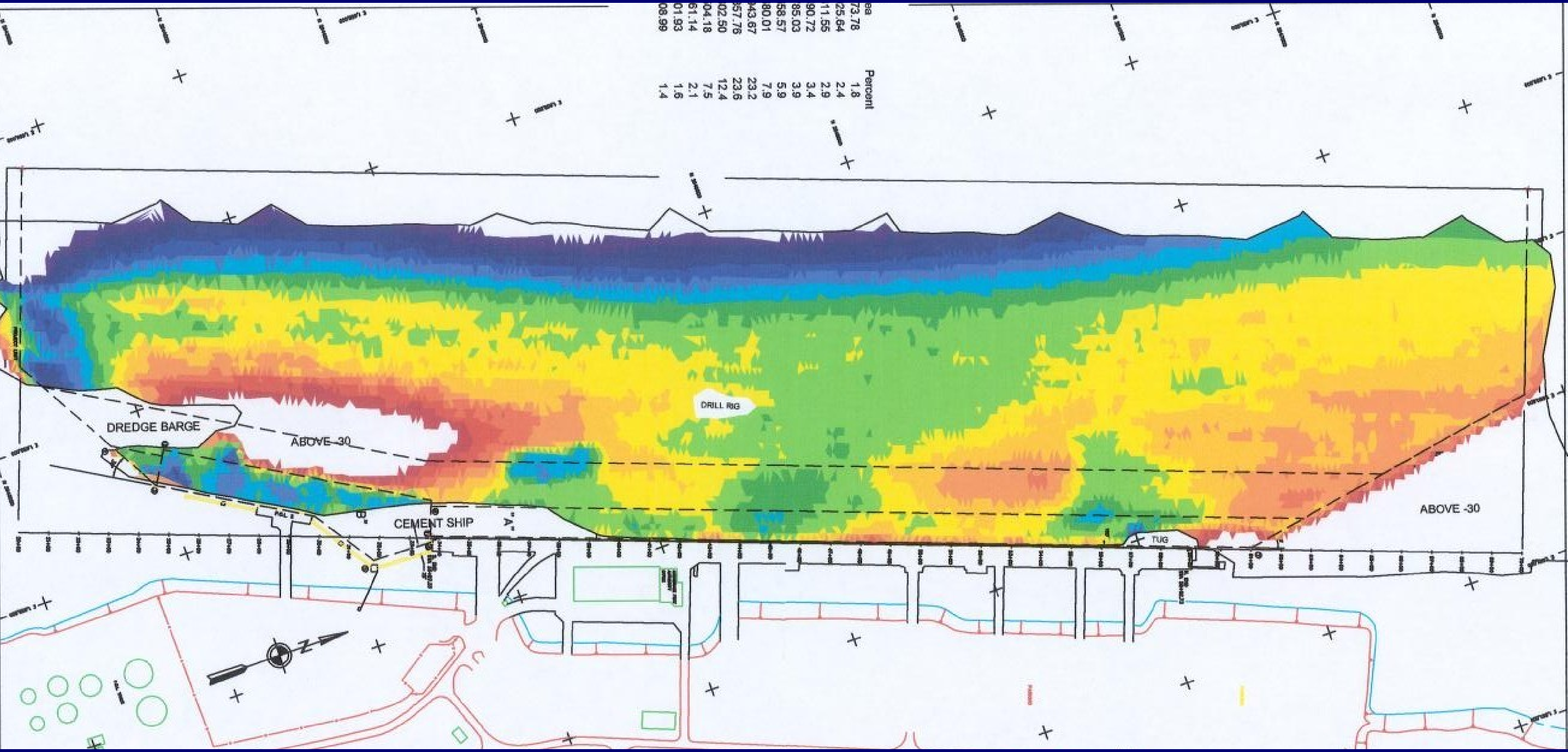
11 August 2003
7 days of Hopper Dredging


Percent
1.9
2.6
3.1
3.2
4.2
5.0
6.2
19.5
23.3
12.2
12.1
3.5
1.7
1.5
DREDGE BARGE
ABOVE -30
FUEL SHIP
"B"
CEMENT SHIP
DRILL RIG
TUG BOATS
ABOVE -30
N

US Army Corps
of Engineers
Alaska District

13 August 2003
9 days of Hopper Dredging

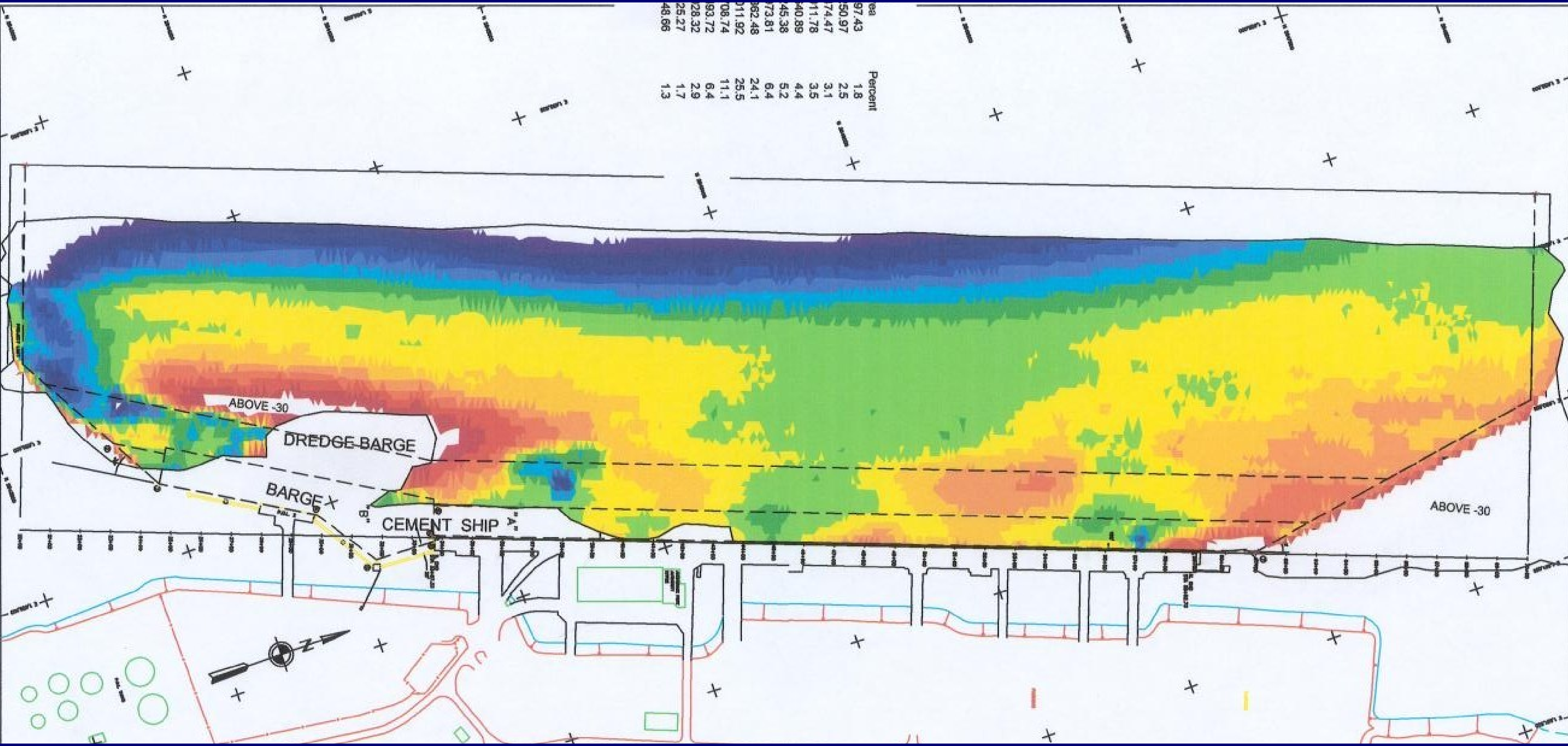
AK


ea
Percent
73.78 1.8
25.64 2.4
11.55 2.9
90.72 3.4
85.03 3.9
58.57 5.9
80.01 7.9
43.67 23.2
57.76 23.6
02.50 12.4
04.18 7.5
61.14 2.1
01.93 1.6
08.99 1.4
DRILL RIG
DREDGE BARGE
ABOVE -30
CEMENT SHIP
"B"
"A"
TUG
ABOVE -30
N

US Army Corps of Engineers
Alaska District

15 August 2003
11 days of Hopper Dredging

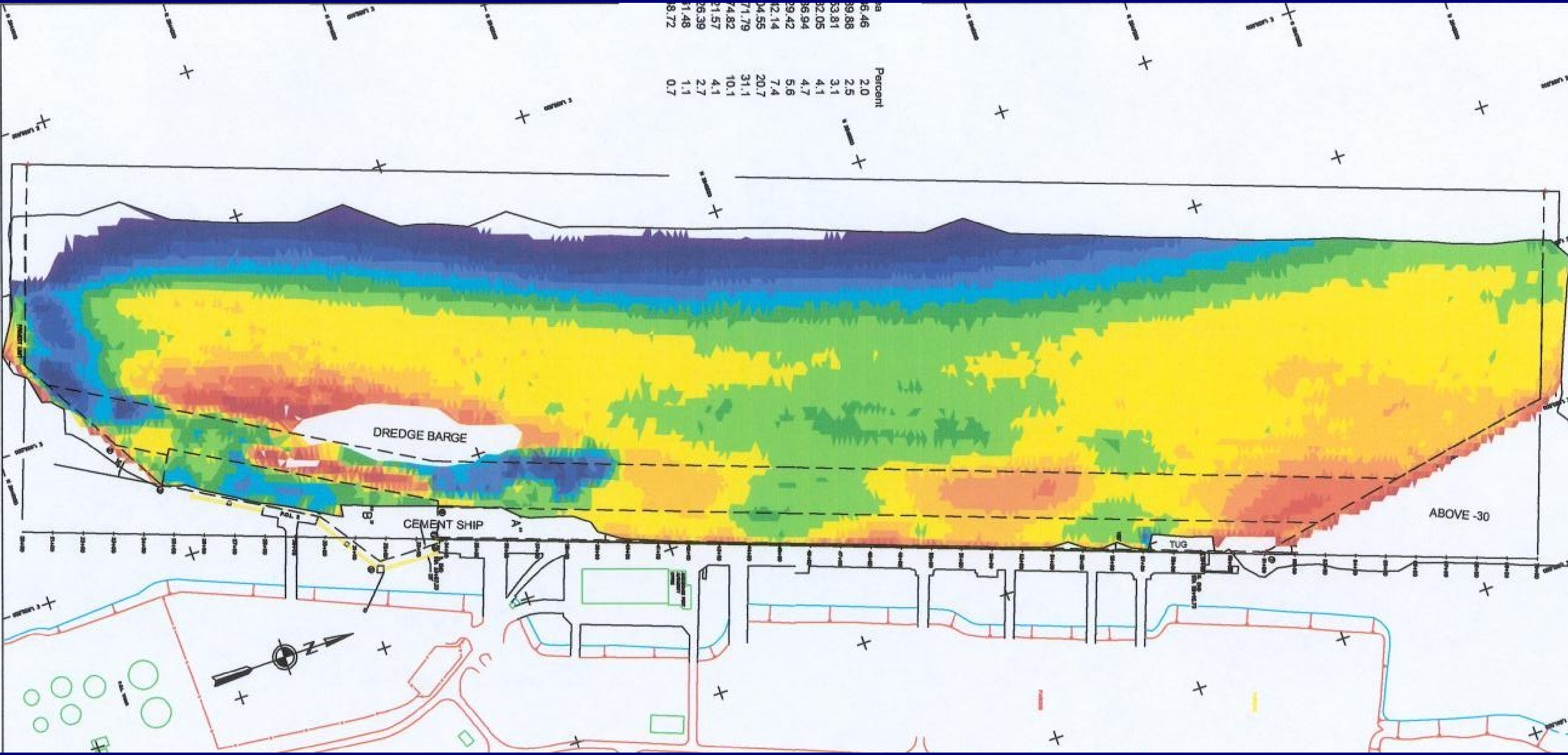
AK


Percent
1.8
2.5
3.1
3.5
4.4
5.2
6.4
24.1
25.5
11.1
6.4
2.9
1.7
1.3
ABOVE -30
DREDGE BARGE
BARGE
"B"
CEMENT SHIP
"A"
ABOVE -30

US Army Corps
of Engineers
Alaska District

18 August 2003
14 days of Hopper Dredging

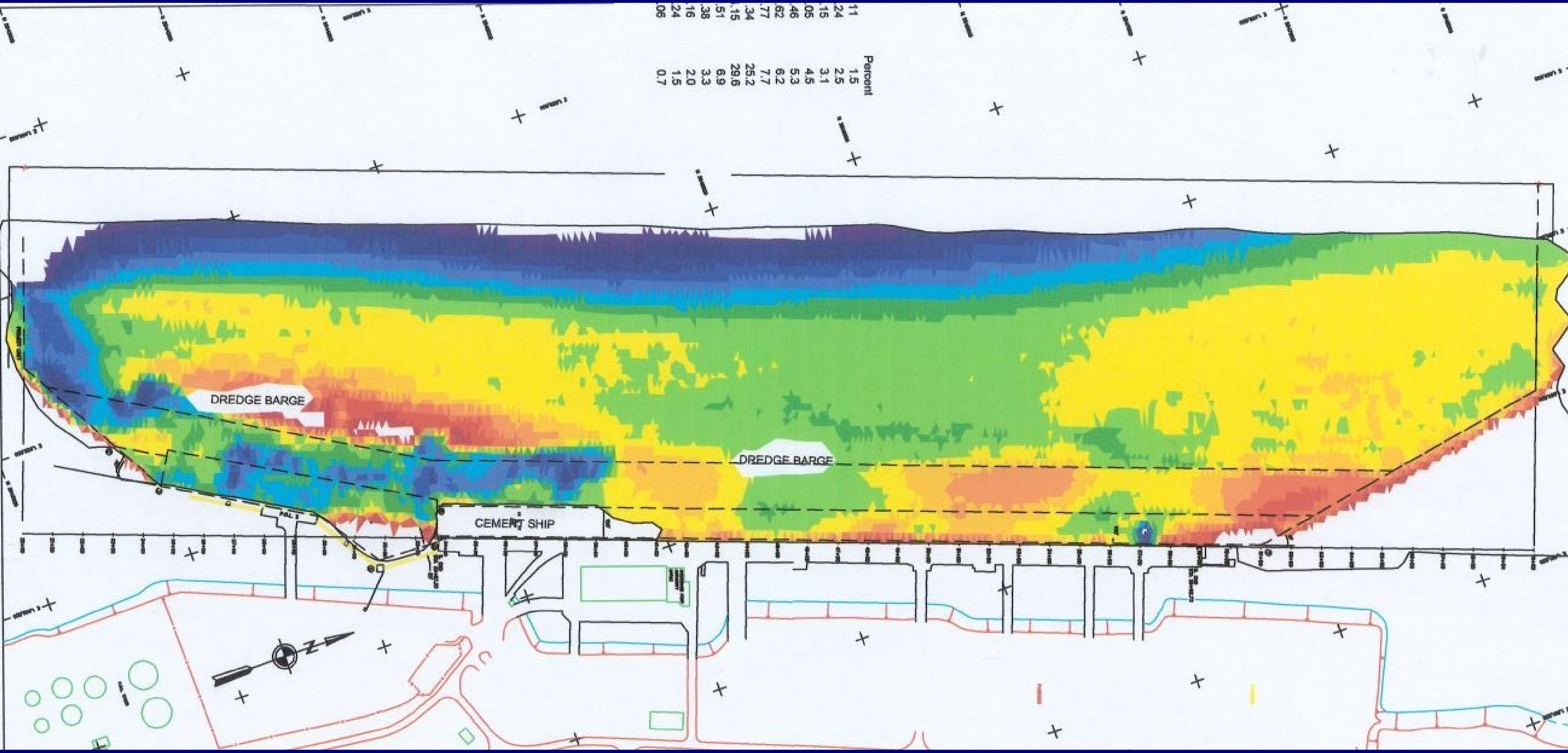
AK


Percent
2.0
2.5
3.1
4.1
4.7
5.6
7.4
20.7
31.1
10.1
4.1
2.7
1.1
0.7
DREDGE BARGE
CEMENT SHIP
TUG
ABOVE -30
N

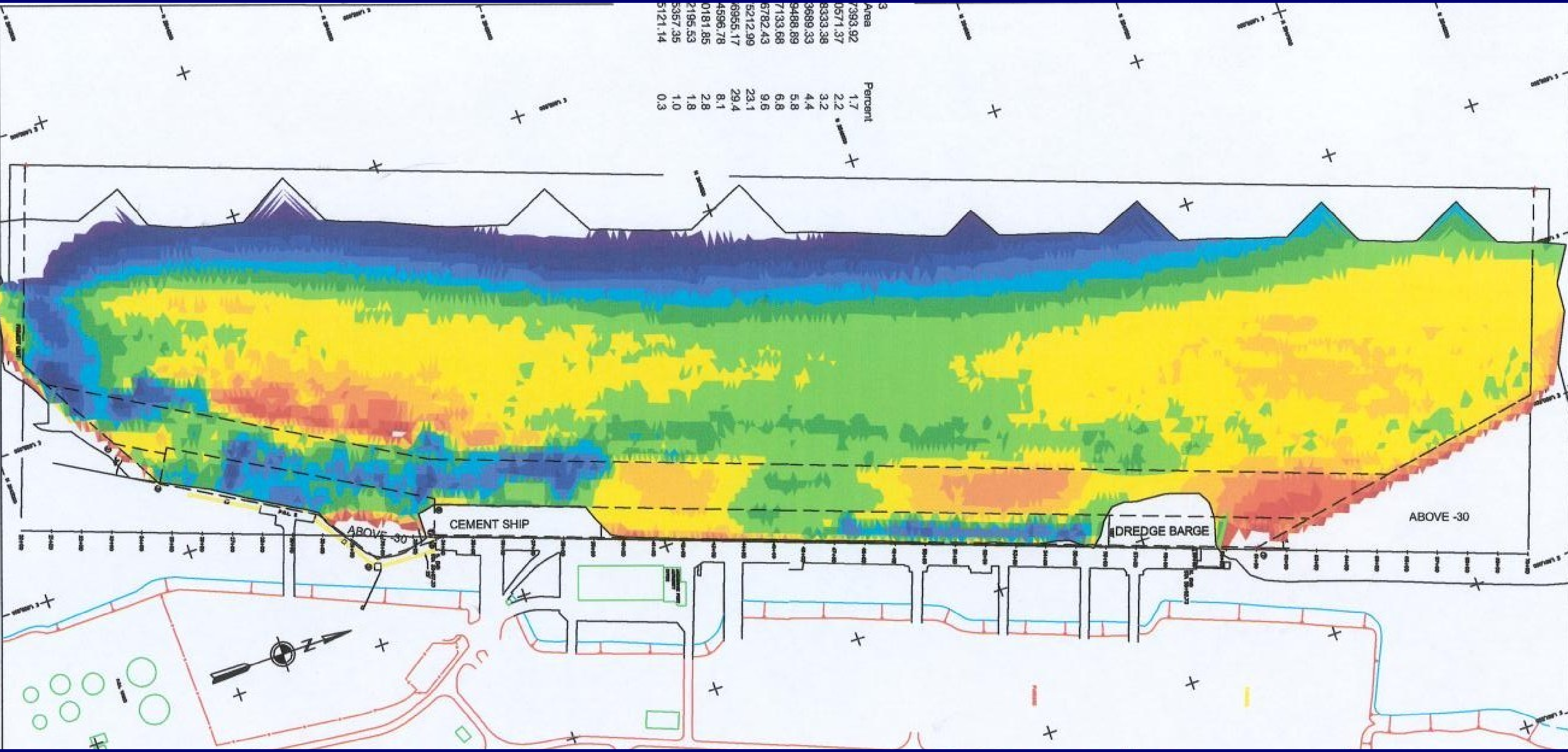
US Army Corps
of Engineers
Alaska District

20 August 2003
16 days of Hopper Dredging

AK


DREDGE BARGE
DREDGE BARGE
CEMENT SHIP
Percent

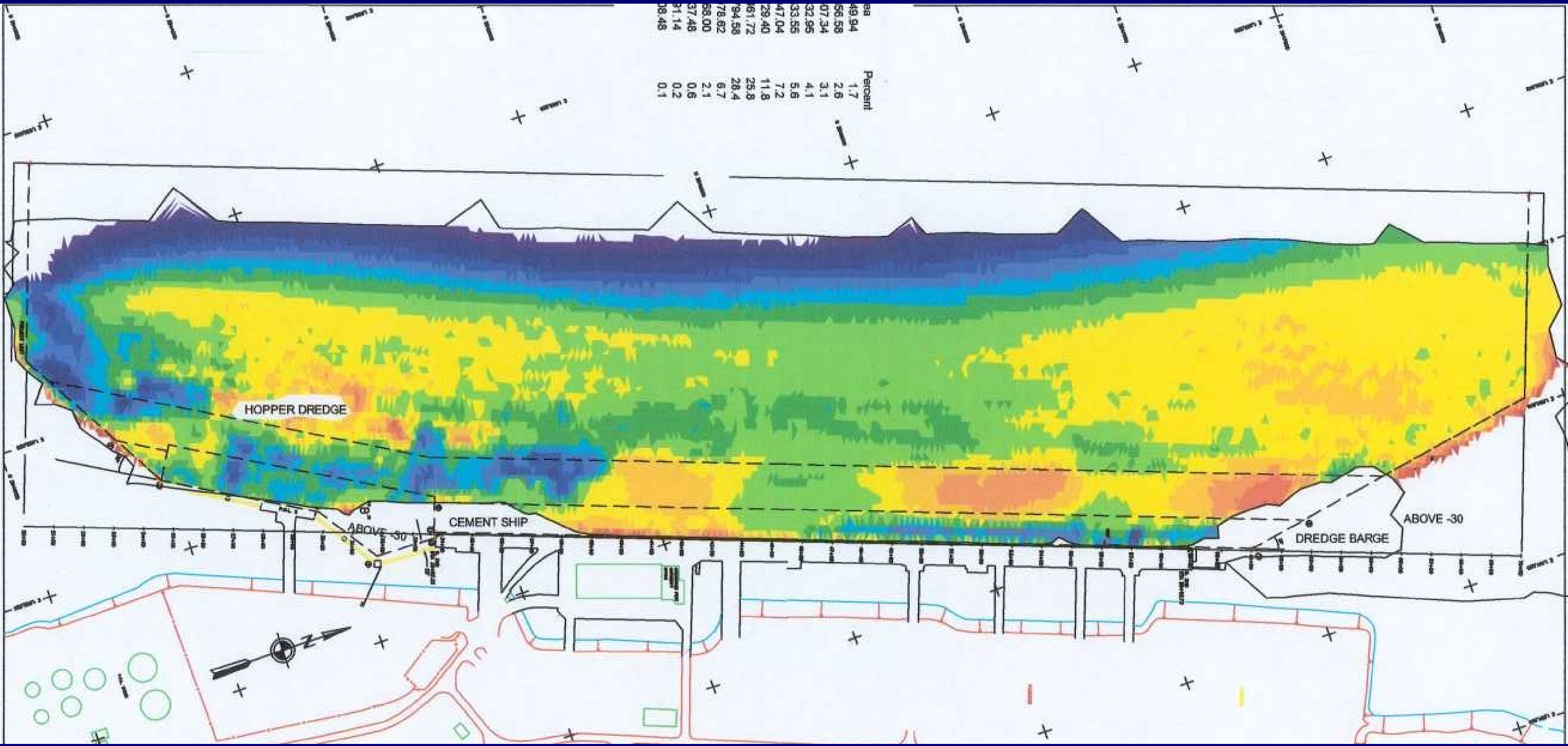
22 August 2003
18 days of Hopper Dredging


Area
7393.92
0571.37
8333.38
3689.33
9488.89
7133.68
6782.43
5212.99
6955.17
4596.78
0181.85
2195.53
5357.35
5121.14
Percent
1.7
2.2
3.2
4.4
5.8
6.8
9.6
23.1
29.4
8.1
2.8
1.8
1.0
0.3
CEMENT SHIP
DREDGE BARGE
ABOVE -30
ABOVE -30
N

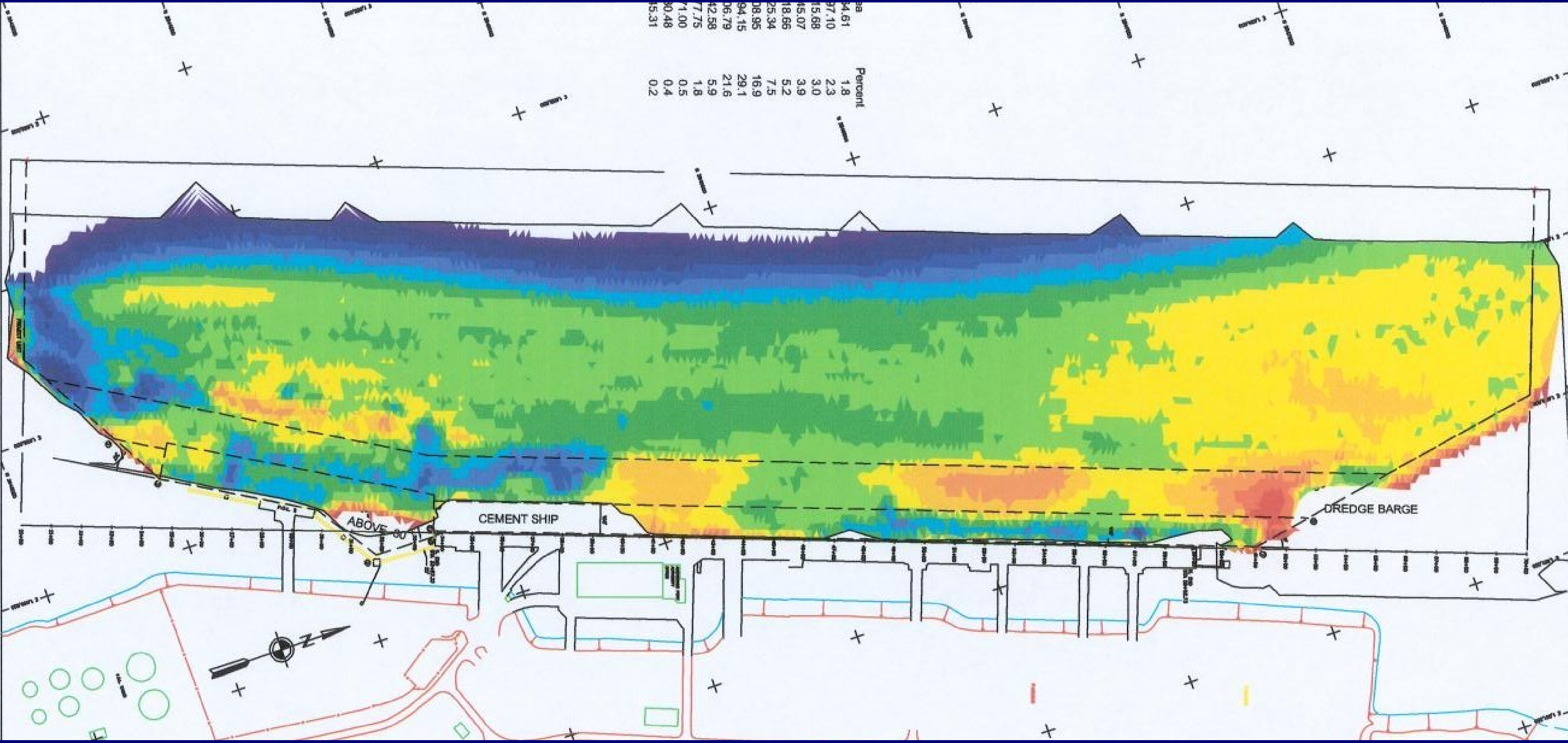
US Army Corps of Engineers
Alaska District

25 August 2003
21 days of Hopper Dredging

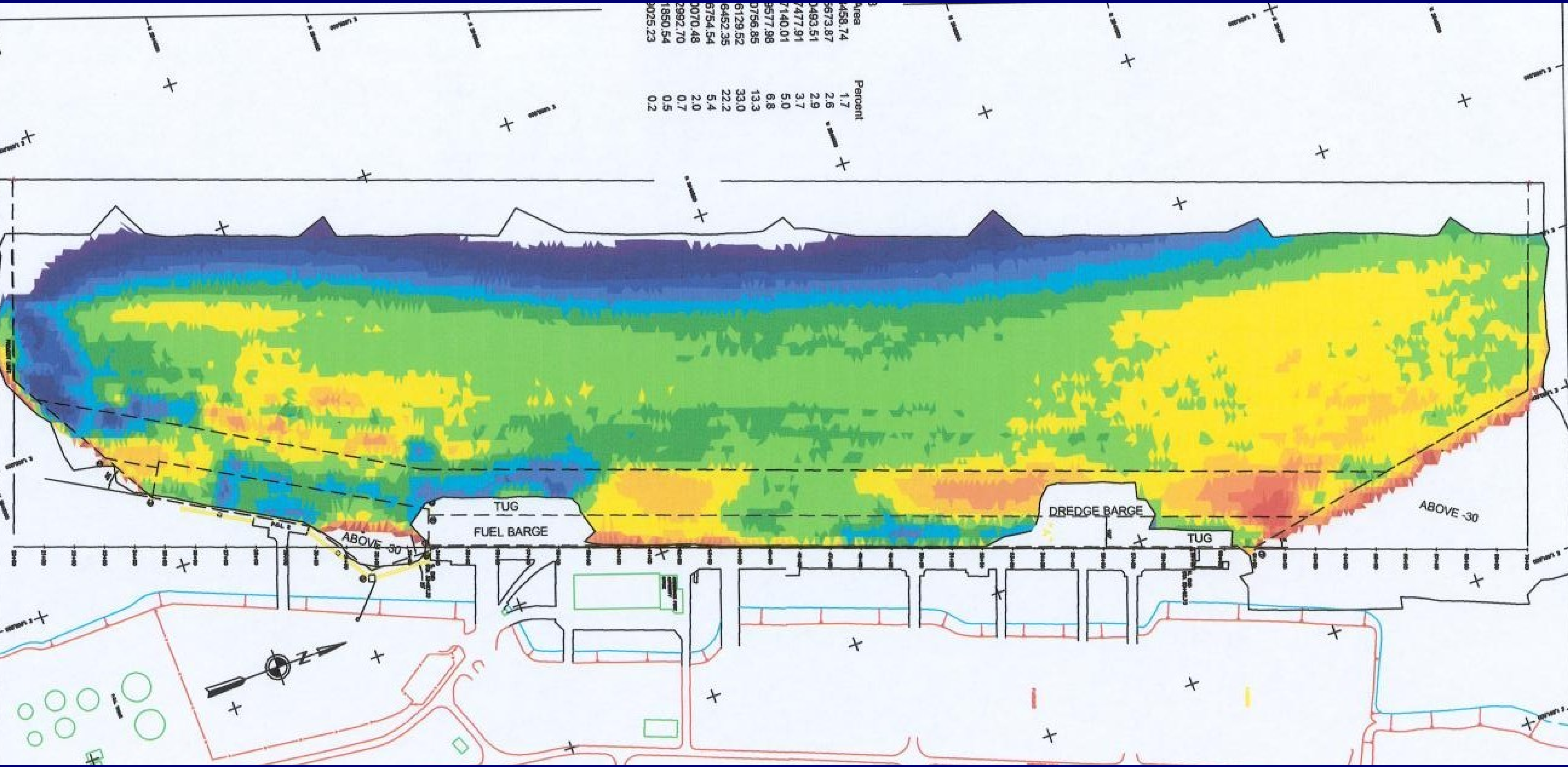
AK


Percent
1.7
2.6
3.1
4.1
5.6
7.2
11.8
25.8
26.4
6.7
2.1
0.6
0.2
0.1
HOPPER DREDGE
CEMENT SHIP
ABOVE -30
ABOVE -30
DREDGE BARGE

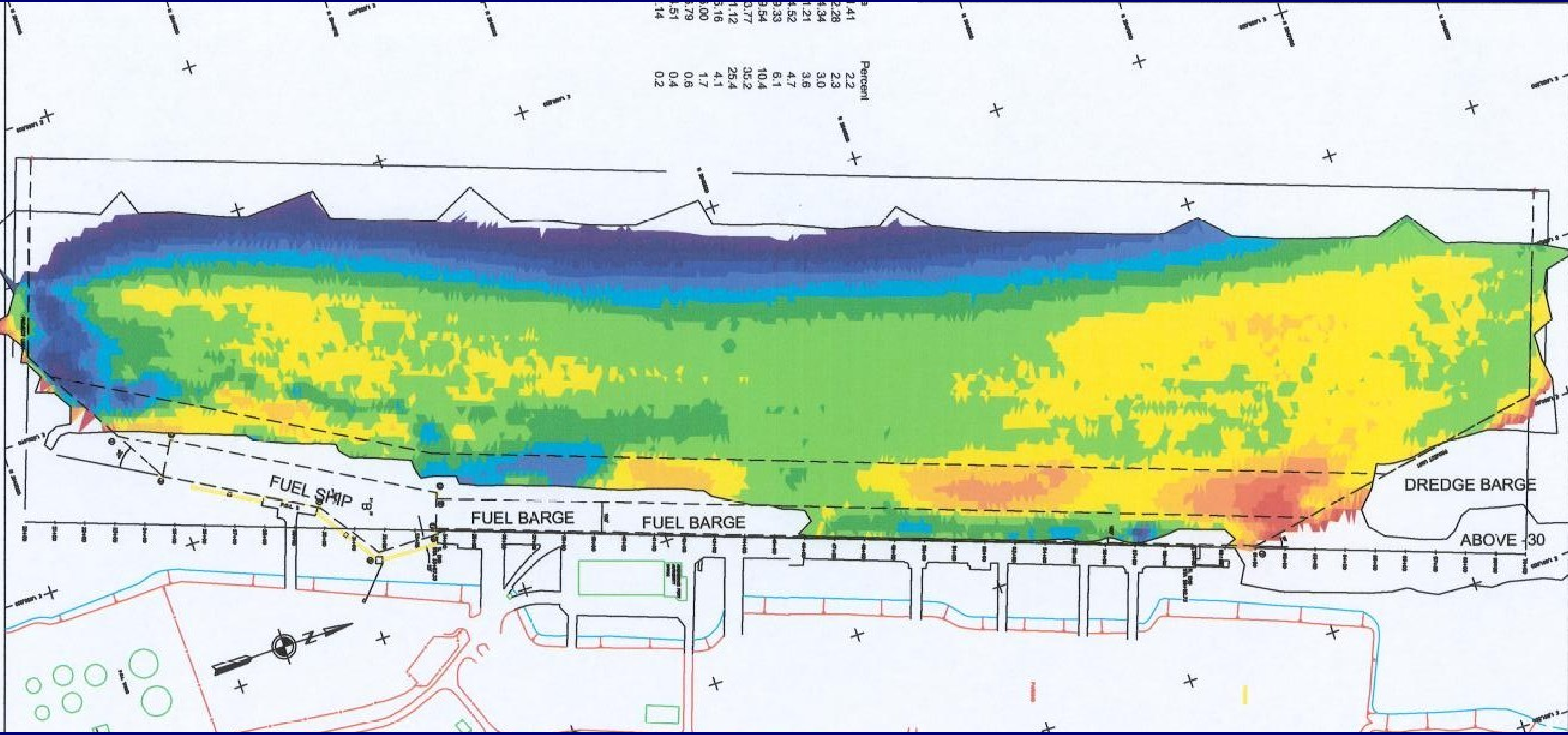
27 August 2003
23 days of Hopper Dredging


Percent
1.8
2.3
3.0
3.9
5.2
7.5
16.9
29.1
21.6
5.9
1.8
0.5
0.4
0.2
ABOVE
CEMENT SHIP
DREDGE BARGE

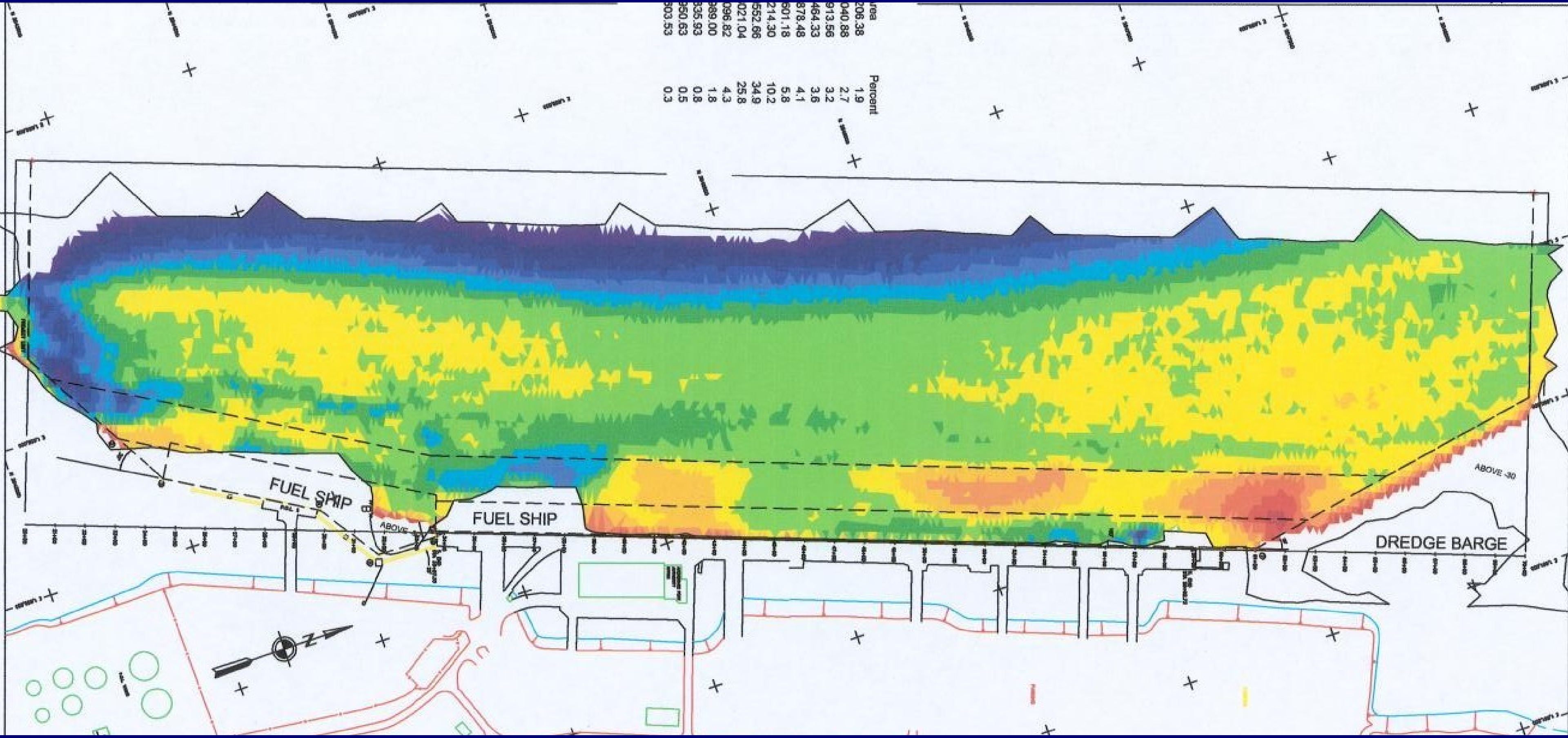
29 August 2003
25 days of Hopper Dredging


Area
458.74
5673.87
0493.51
7477.91
7140.01
8577.98
0756.85
6129.52
6452.35
8754.54
0070.48
2992.70
1850.54
9025.23
Percent
1.7
2.6
2.9
3.7
5.0
6.8
13.3
33.0
22.2
5.4
2.0
0.7
0.5
0.2
TUG
FUEL BARGE
ABOVE -30
DREDGE BARGE
TUG
ABOVE -30

1 September 2003
28 days of Hopper Dredging

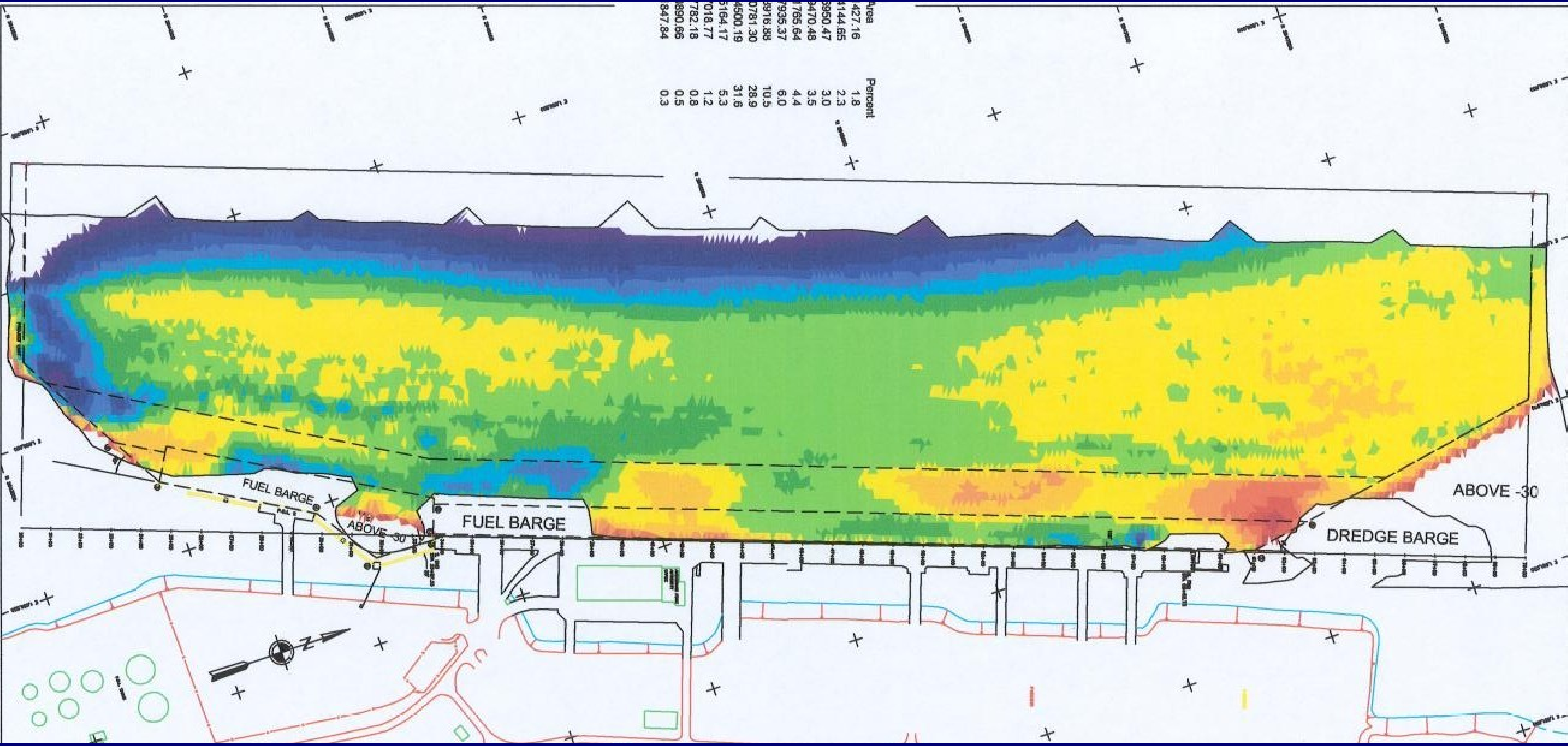

Percent
2.2
2.3
3.0
3.6
4.7
6.1
10.4
35.2
25.4
4.1
1.7
0.6
0.4
0.2
FUEL SHIP
FUEL BARGE
FUEL BARGE
DREDGE BARGE
ABOVE -30
N

3 September 2003
30 days of Hopper Dredging


Percent
1.9
2.7
3.2
3.6
4.1
5.8
10.2
34.9
25.8
4.3
1.8
0.8
0.5
0.3
FUEL SHIP
FUEL SHIP
ABOVE
ABOVE -30
DREDGE BARGE
N

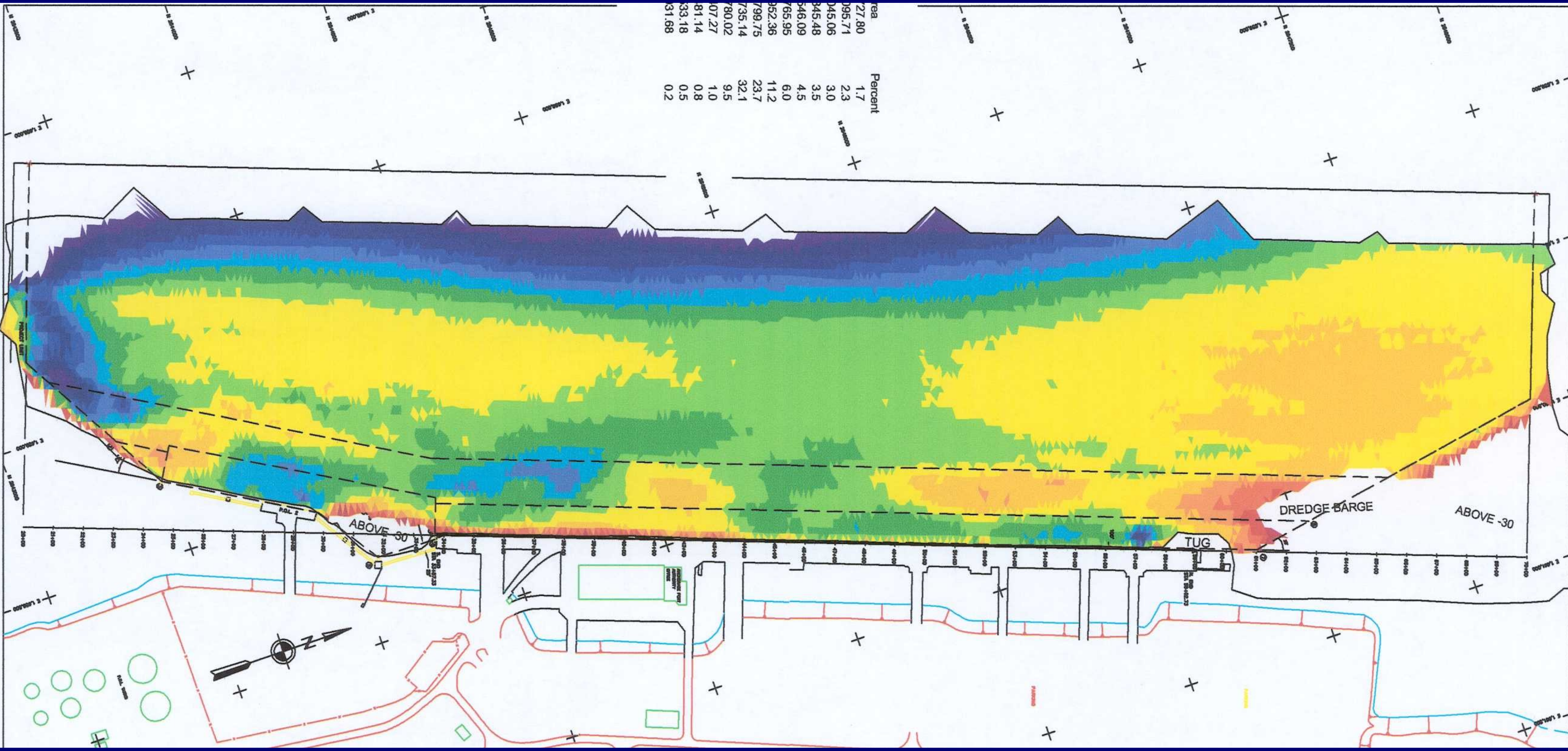
US Army Corps of Engineers
Alaska District

5 September 2003
2 days after Hopper Dredging


rea
427.16
144.65
950.47
470.48
765.64
935.37
916.88
781.30
500.19
164.17
018.77
782.18
890.66
847.84
Percent
1.8
2.3
3.0
3.5
4.4
6.0
10.5
28.9
31.6
5.3
1.2
0.8
0.5
0.3
FUEL BARGE
ABOVE -30
FUEL BARGE
ABOVE -30
DREDGE BARGE
N

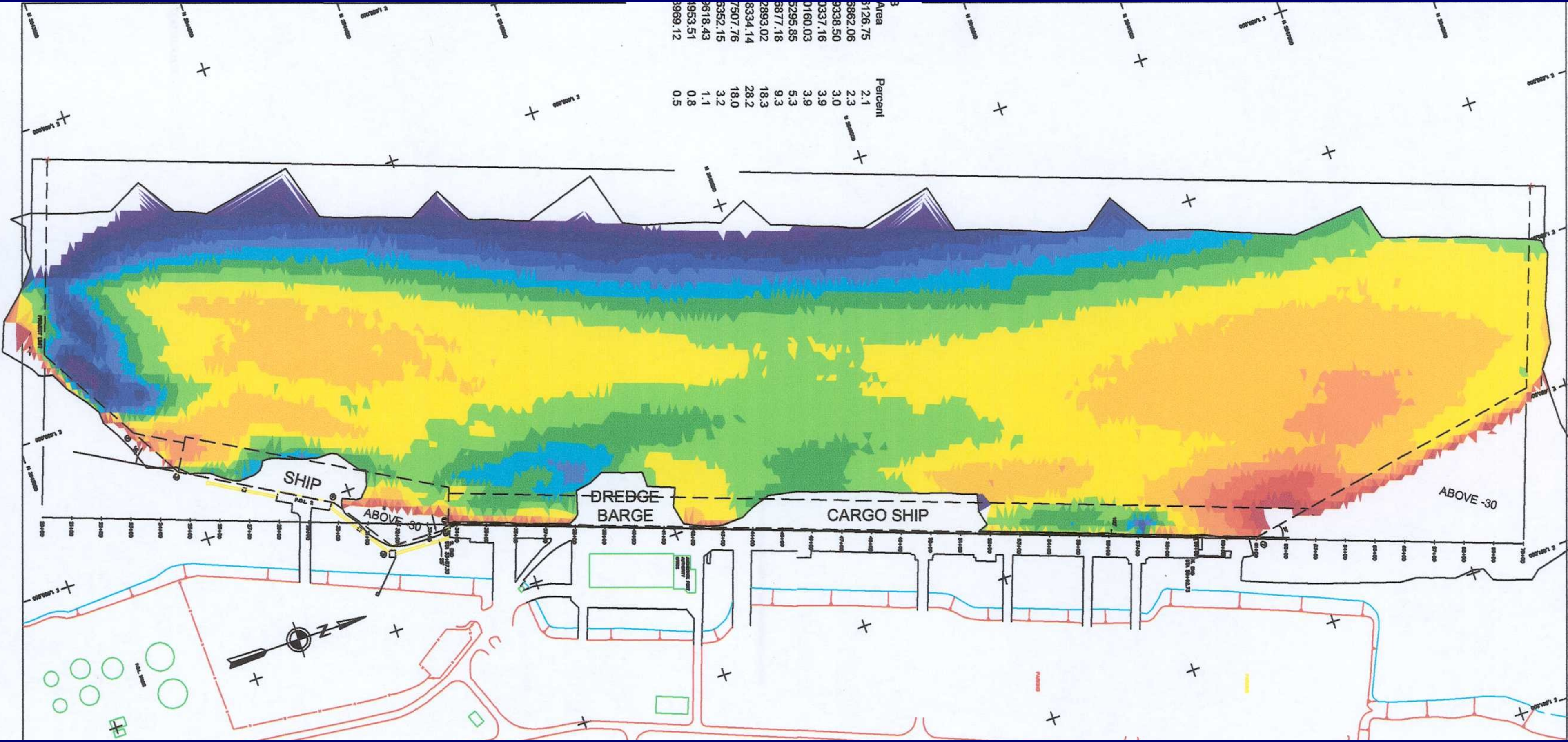
US Army Corps of Engineers
Alaska District

10 September 2003
7 days after Hopper Dredging

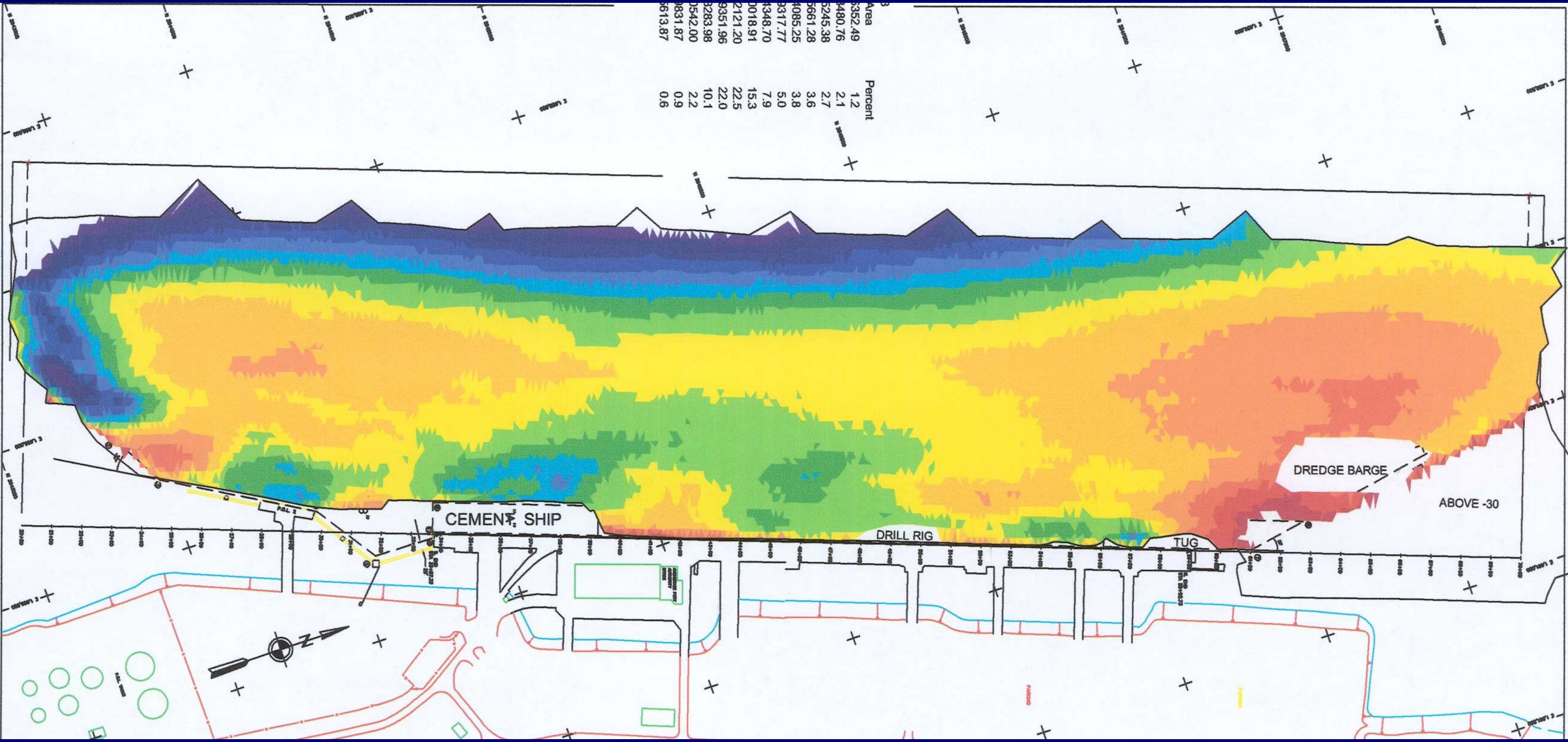

rea
27.80
95.71
45.06
45.48
46.09
65.95
52.36
799.75
735.14
780.02
07.27
81.14
33.18
31.68
Percent
1.7
2.3
3.0
3.5
4.5
6.0
11.2
23.7
32.1
9.5
1.0
0.8
0.5
0.2
ABOVE -30
DREDGE BARGE
ABOVE -30
TUG

US Army Corps of Engineers
Alaska District

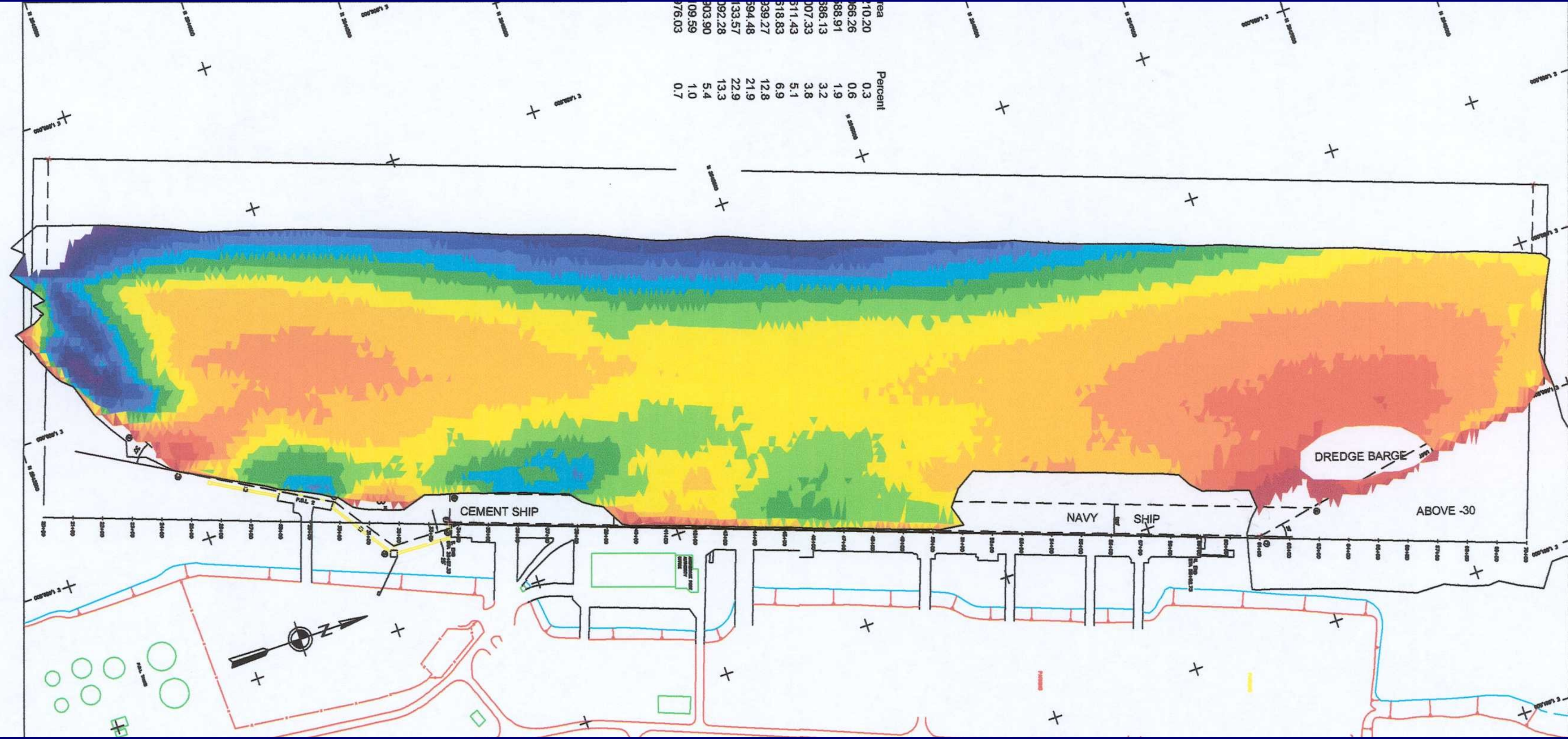
17 September 2003
14 days after Hopper Dredging


Area
Percent
2.1
2.3
3.0
3.9
3.9
5.3
9.3
18.3
28.2
18.0
3.2
1.1
0.8
0.5
SHIP
ABOVE -30
DREDGE
BARGE
CARGO SHIP
ABOVE -30
N

26 September 2003
23 days after Hopper Dredging

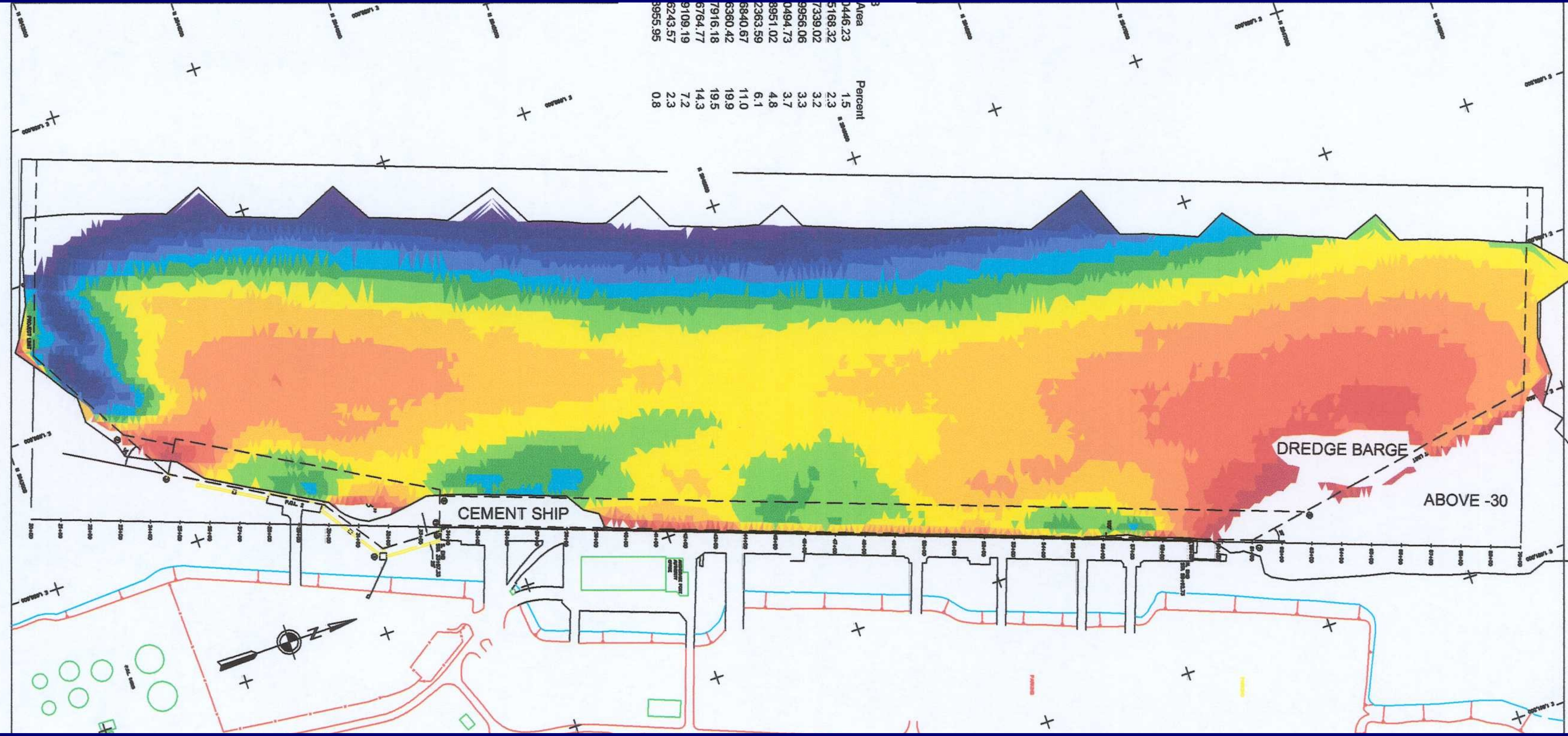

Percent
1.2
2.1
2.7
3.6
3.8
5.0
7.9
15.3
22.5
22.0
10.1
2.2
0.9
0.6
CEMENT SHIP
DRILL RIG
TUG
DREDGE BARGE
ABOVE -30

1 October 2003
28 days after Hopper Dredging

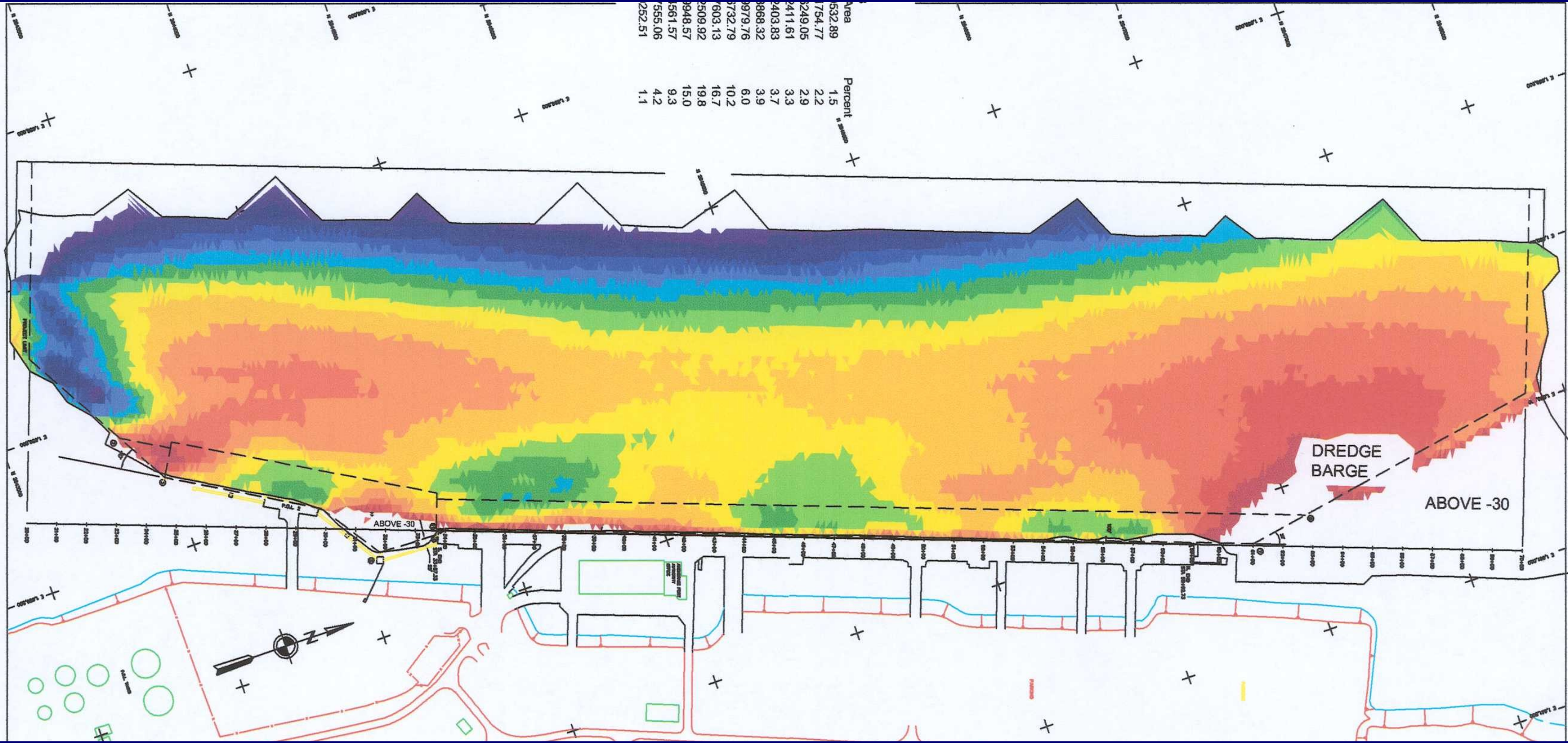

Percent
0.3
0.6
1.9
3.2
3.8
5.1
6.9
12.8
21.9
22.9
13.3
5.4
1.0
0.7
DREDGE BARGE
CEMENT SHIP
NAVY
SHIP
ABOVE -30

US Army Corps of Engineers
Alaska District

6 October 2003
33 days after Hopper Dredging

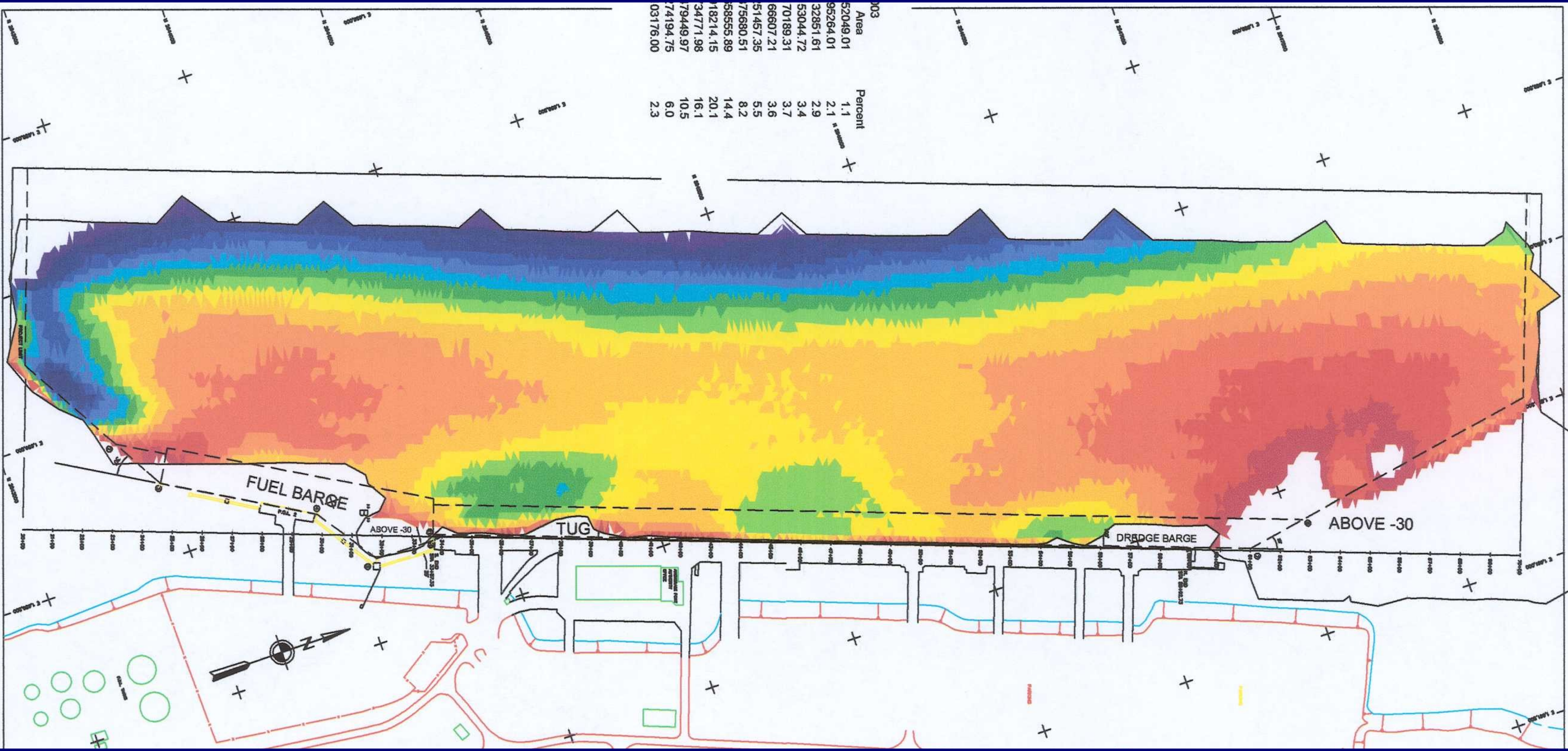

Area
Percent
1.5
2.3
3.2
3.3
3.7
4.8
6.1
11.0
19.9
19.5
14.3
7.2
2.3
0.8
CEMENT SHIP
DREDGE BARGE
ABOVE -30

8 October 2003
35 days after Hopper Dredging


Percent
1.5
2.2
2.9
3.3
3.7
3.9
6.0
10.2
16.7
19.8
15.0
9.3
4.2
1.1
DREDGE
BARGE
ABOVE -30
ABOVE -30

US Army Corps of Engineers
Alaska District

10 October 2003
37 days after Hopper Dredging

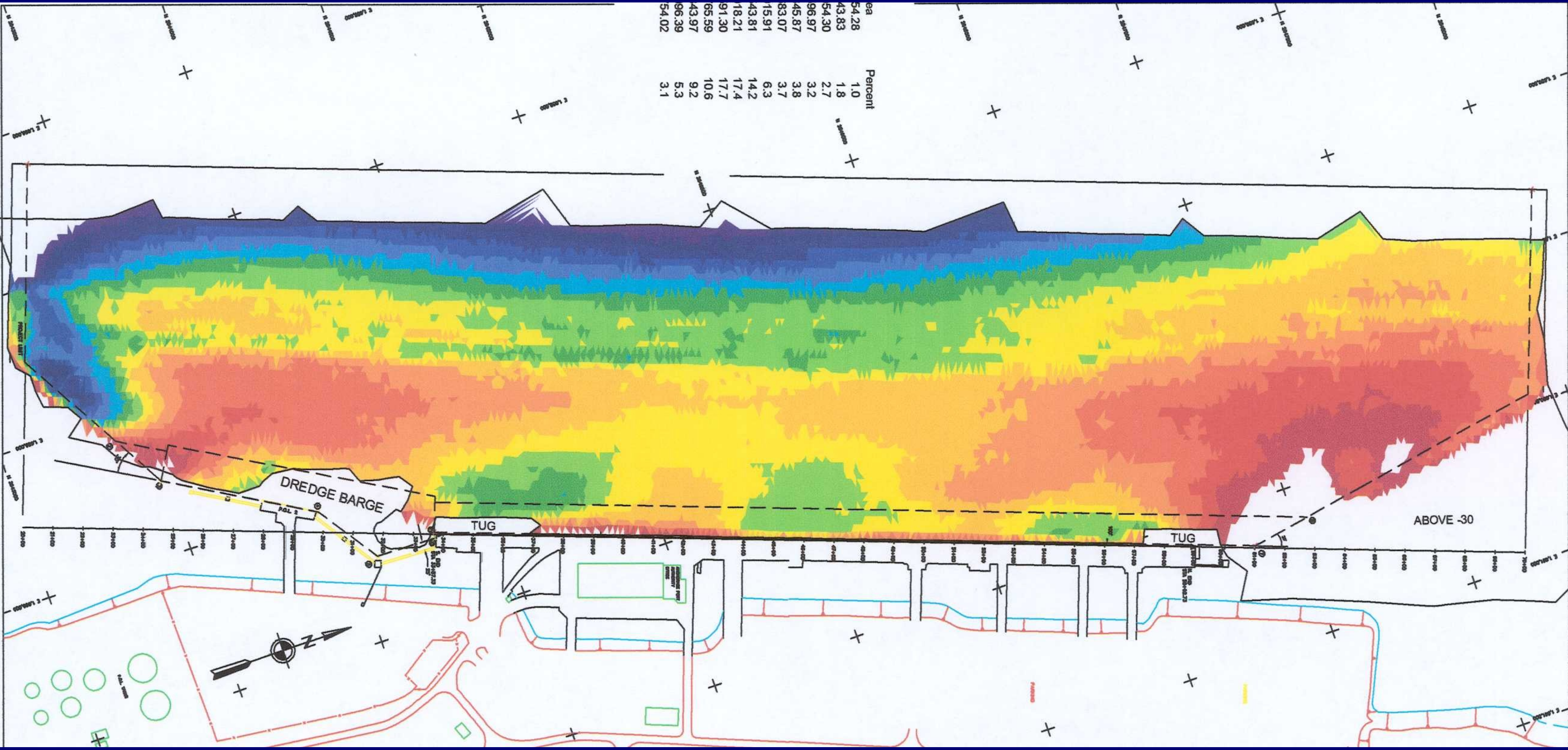

003
Area
52049.01
95264.01
32851.61
53044.72
70189.31
66607.21
51457.35
75680.51
58555.89
18214.15
34771.98
79449.97
74194.75
03176.00
Percent
1.1
2.1
2.9
3.4
3.7
3.6
5.5
8.2
14.4
20.1
16.1
10.5
6.0
2.3
FUEL BARGE
ABOVE -30
TUG
DREDGE BARGE
ABOVE -30

US Army Corps
of Engineers
Alaska District

13 October 2003

2 days of Hopper; 1 day Clamshell Dredging

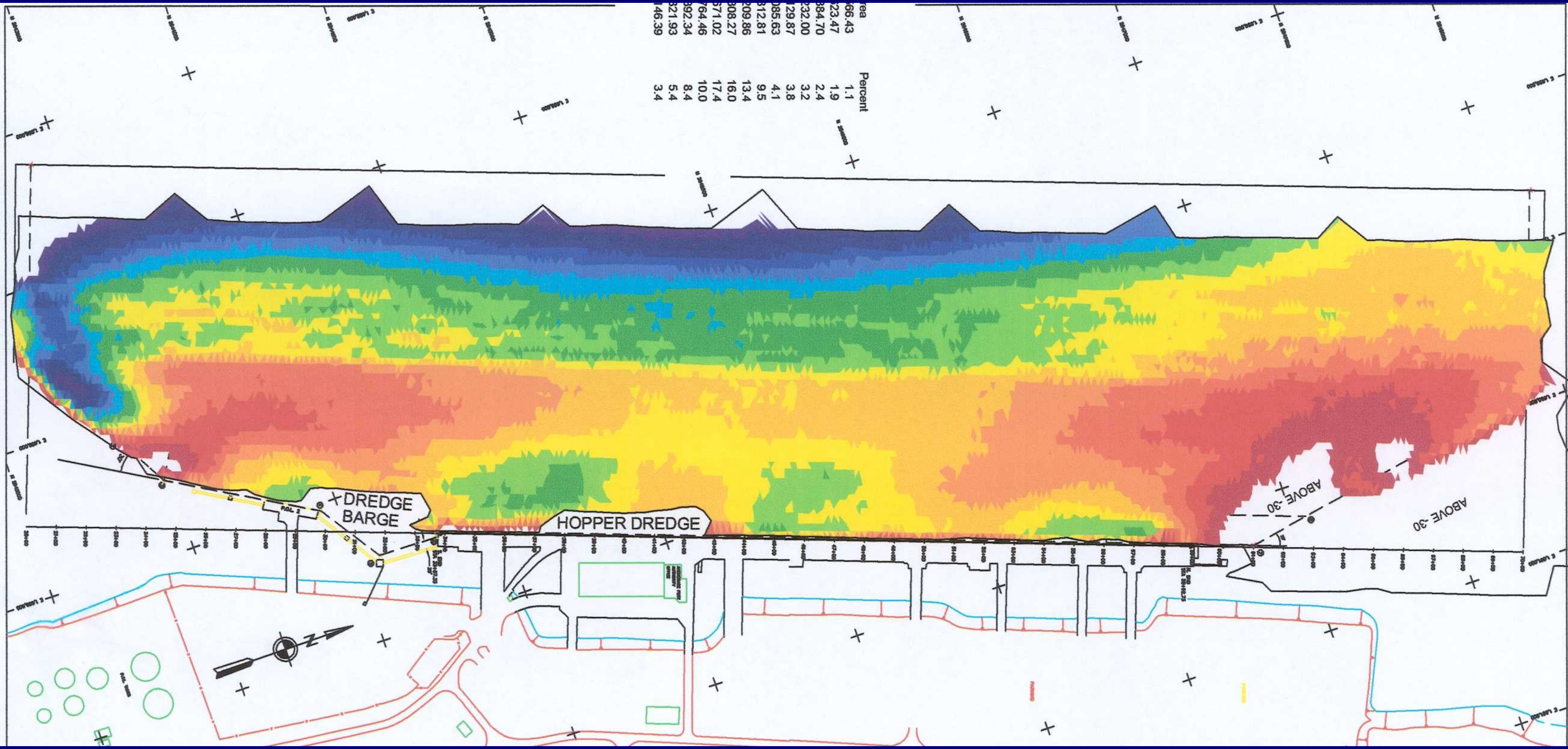
AK


ea
54.28
43.83
54.30
96.97
45.87
83.07
15.91
43.81
18.21
91.30
65.59
43.97
96.39
54.02
Percent
1.0
1.8
2.7
3.2
3.8
3.7
6.3
14.2
17.4
17.7
10.6
9.2
5.3
3.1
DREDGE BARGE
TUG
TUG
ABOVE -30

US Army Corps of Engineers
Alaska District

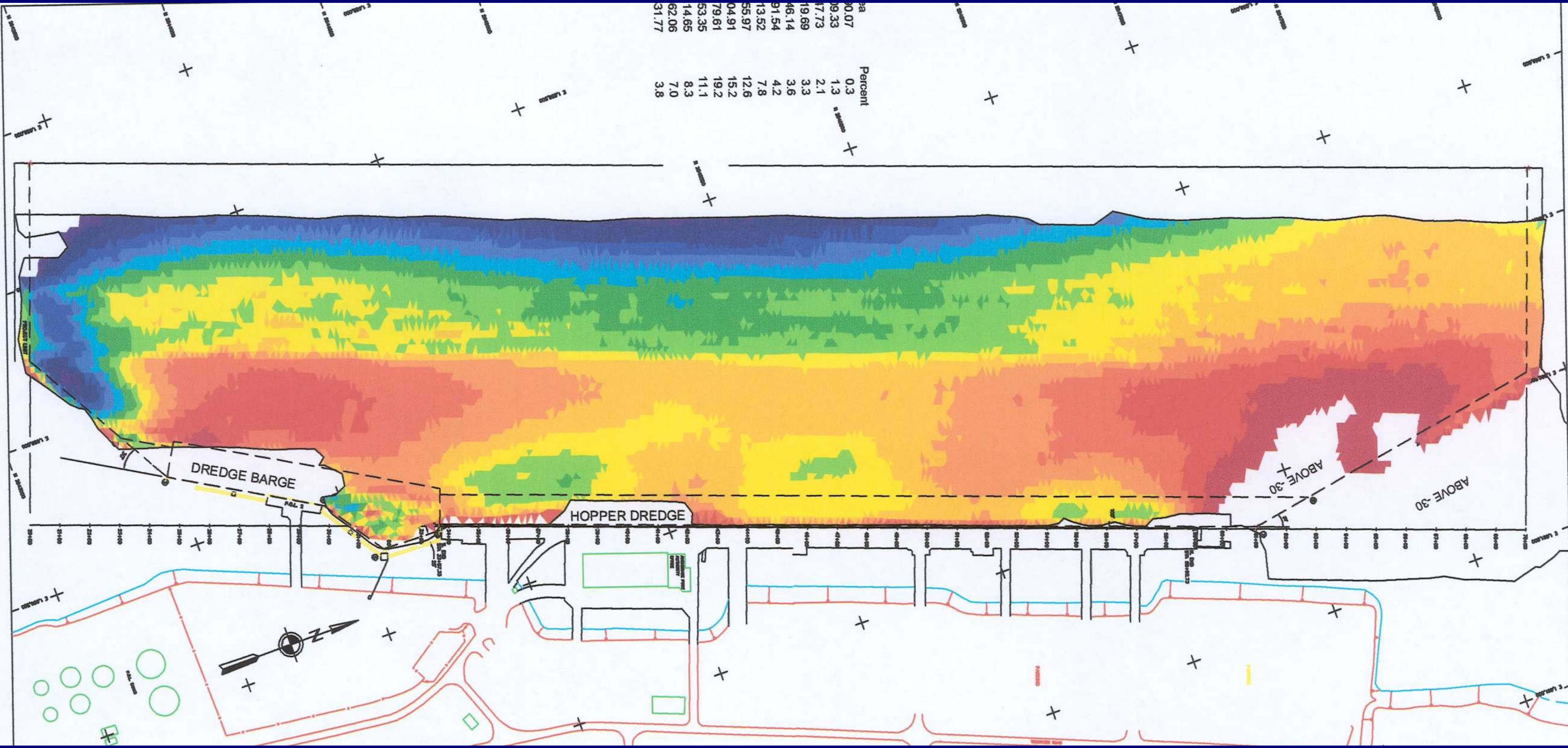
15 October 2003

4 days of Hopper; 3 days of Clamshell Dredging


DREDGE BARGE
HOPPER DREDGE
ABOVE -30
ABOVE -30
Percent

17 October 2003

6 days of Hopper; 5 days of Clamshell Dredging

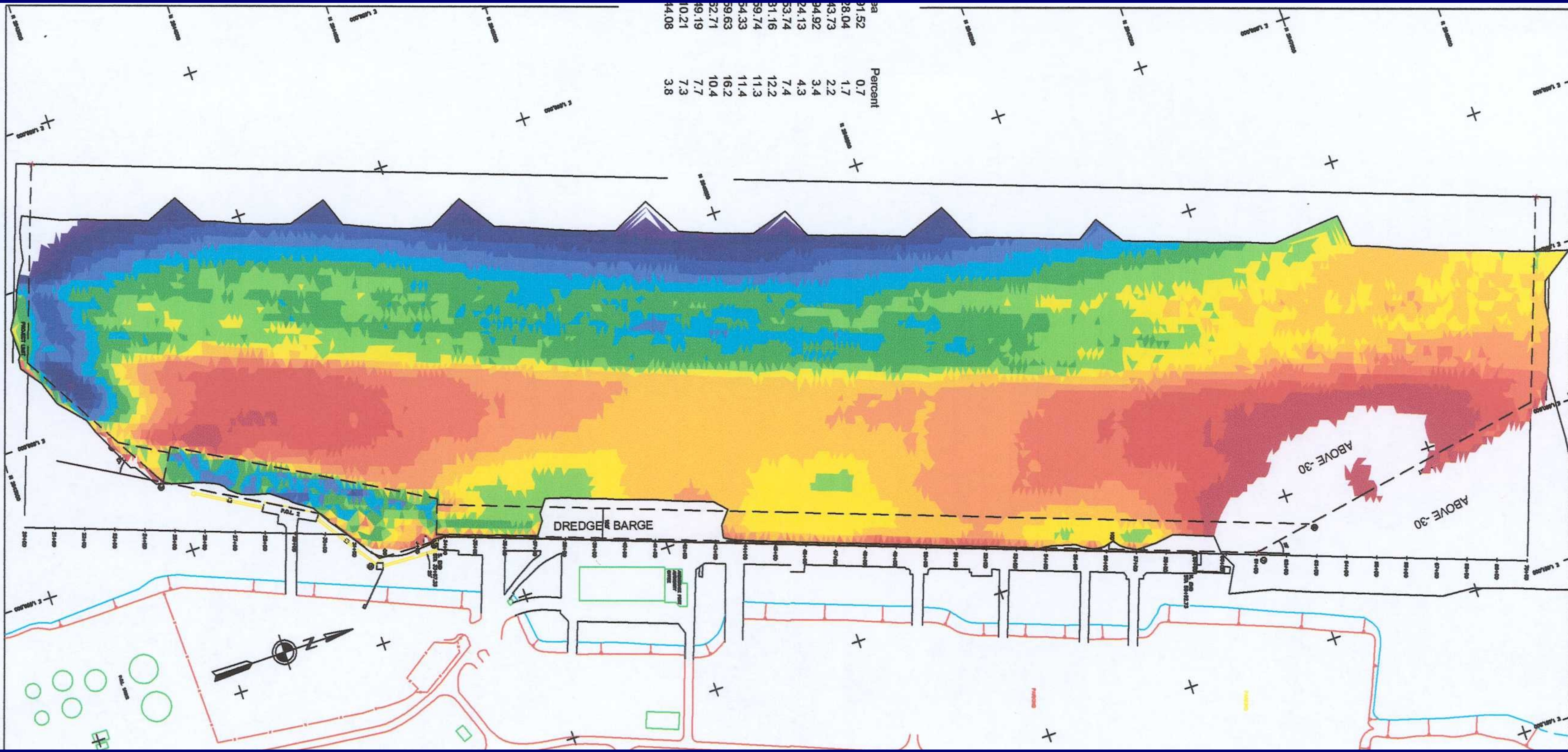

DREDGE BARGE
HOPPER DREDGE
ABOVE -30
ABOVE -30
Percent

US Army Corps
of Engineers
Alaska District

20 October 2003

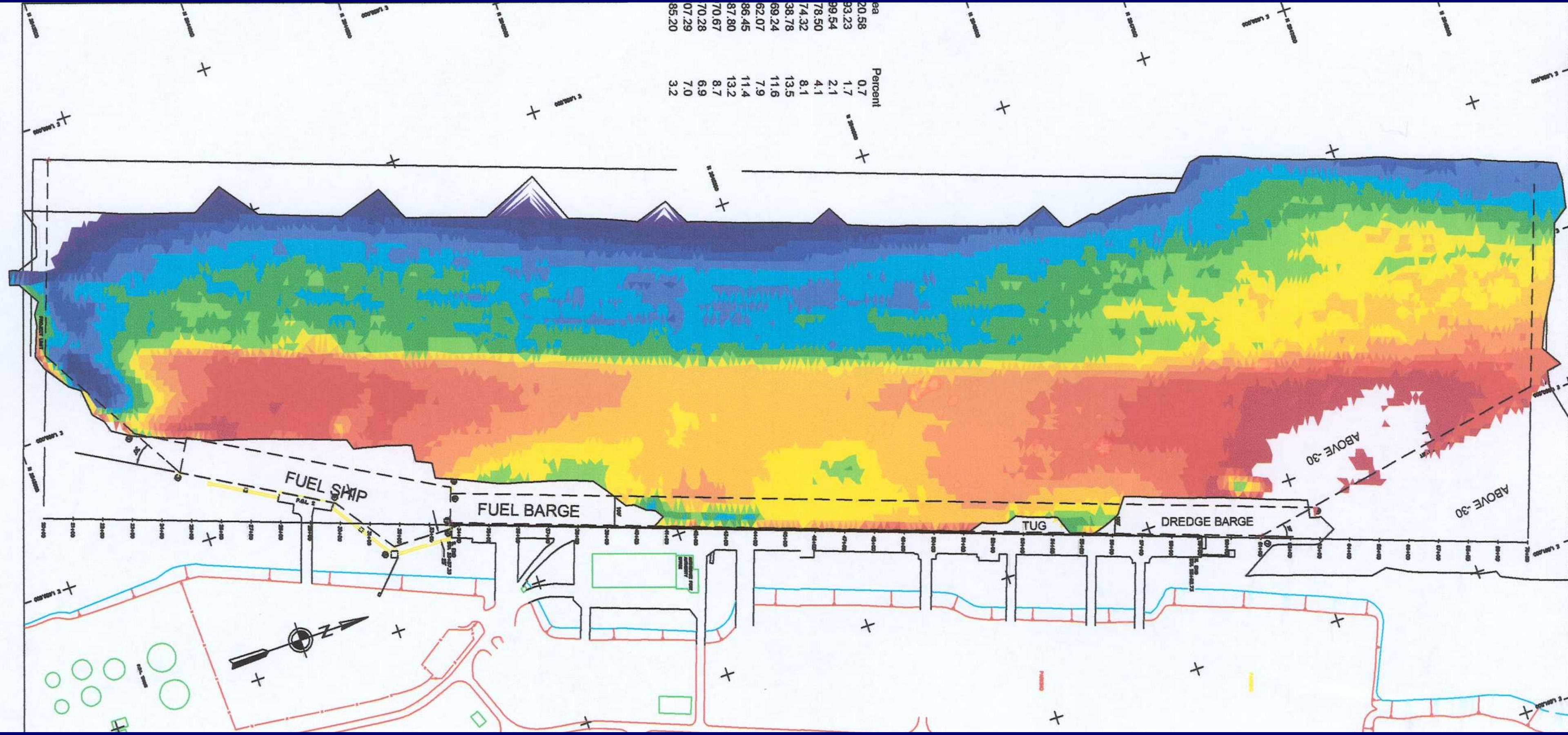
9 days of Hopper; 8 days of Clamshell Dredging

AK


DREDGE BARGE
ABOVE -30
ABOVE -30

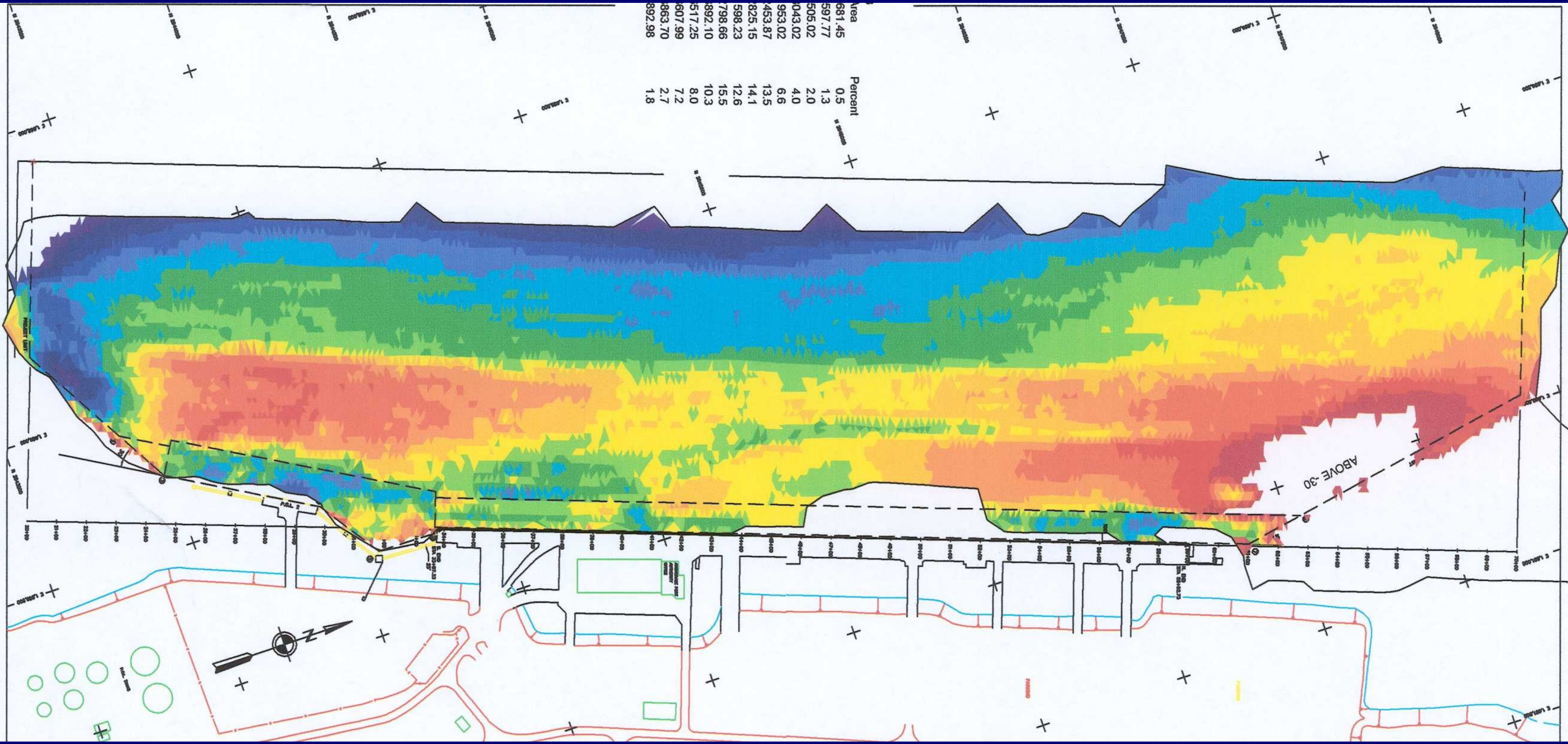
22 October 2003

11 days of Hopper; 10 days of Clamshell Dredging


FUEL SHIP
FUEL BARGE
TUG
DREDGE BARGE
ABOVE -30
ABOVE -30
Percent

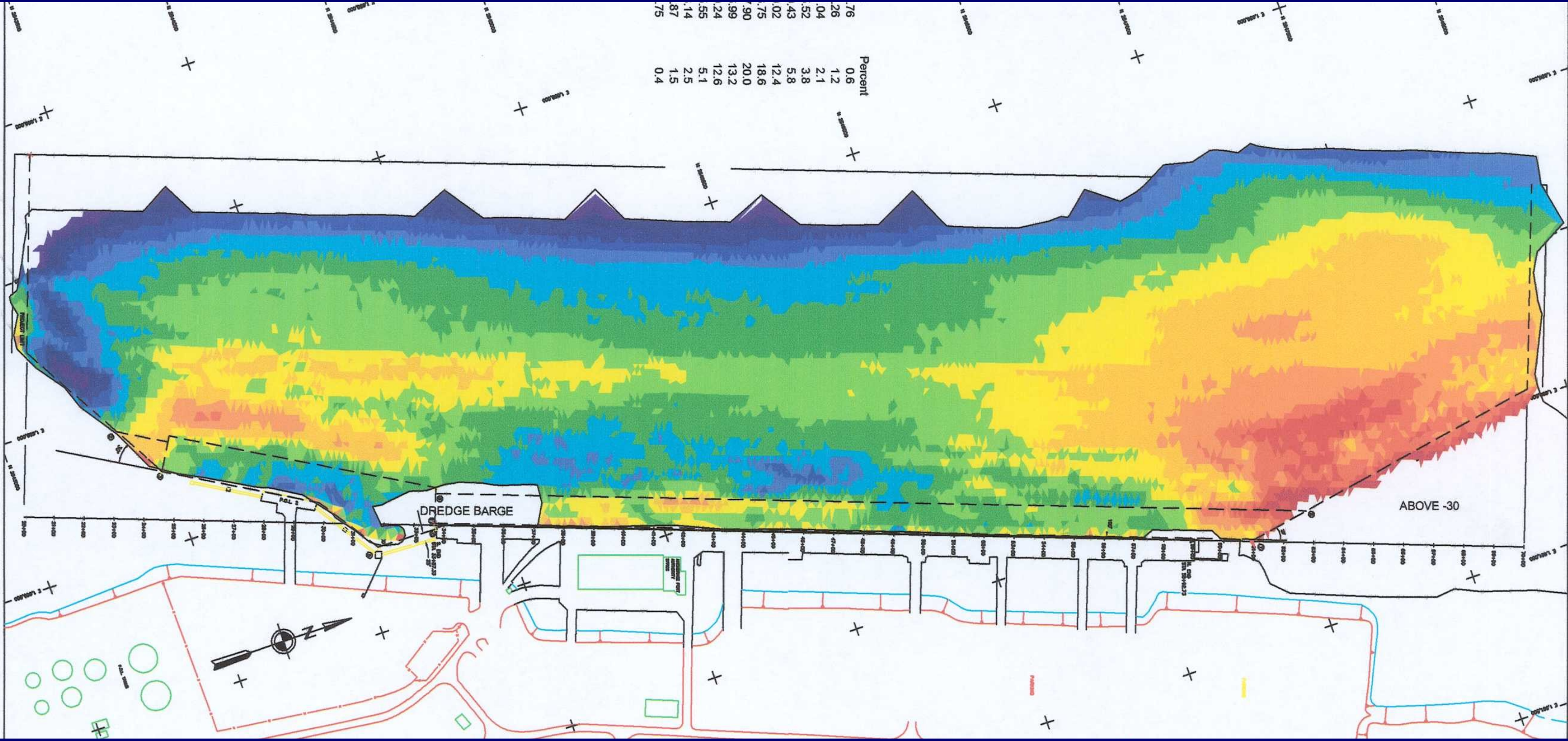
24 October 2003

13 days of Hopper; 12 days of Clamshell Dredging


Area
681.45
597.77
505.02
043.02
953.02
453.87
825.15
598.23
798.66
892.10
517.25
607.99
863.70
892.98
Percent
0.5
1.3
2.0
4.0
6.6
13.5
14.1
12.6
15.5
10.3
8.0
7.2
2.7
1.8
ABOVE -30
N

27 October 2003

16 days of Hopper; 15 days of Clamshell Dredging

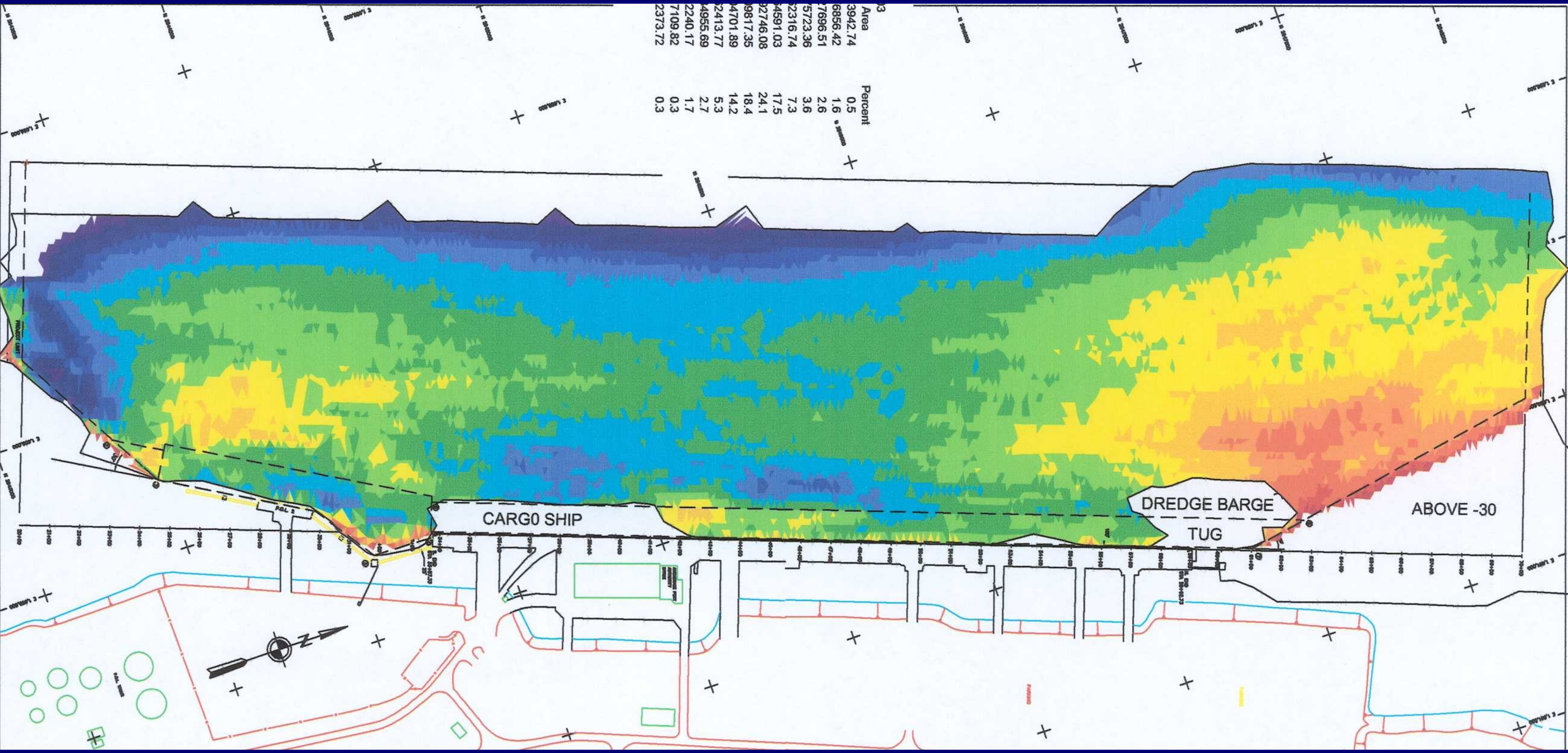

.76
.26
.04
.52
.43
.02
.75
.90
.99
.24
.55
.14
.87
.75
Percent
0.6
1.2
2.1
3.8
5.8
12.4
18.6
20.0
13.2
12.6
5.1
2.5
1.5
0.4
DREDGE BARGE
ABOVE -30
N

US Army Corps
of Engineers
Alaska District

29 October 2003

18 days of Hopper; 17 days of Clamshell Dredging

AK

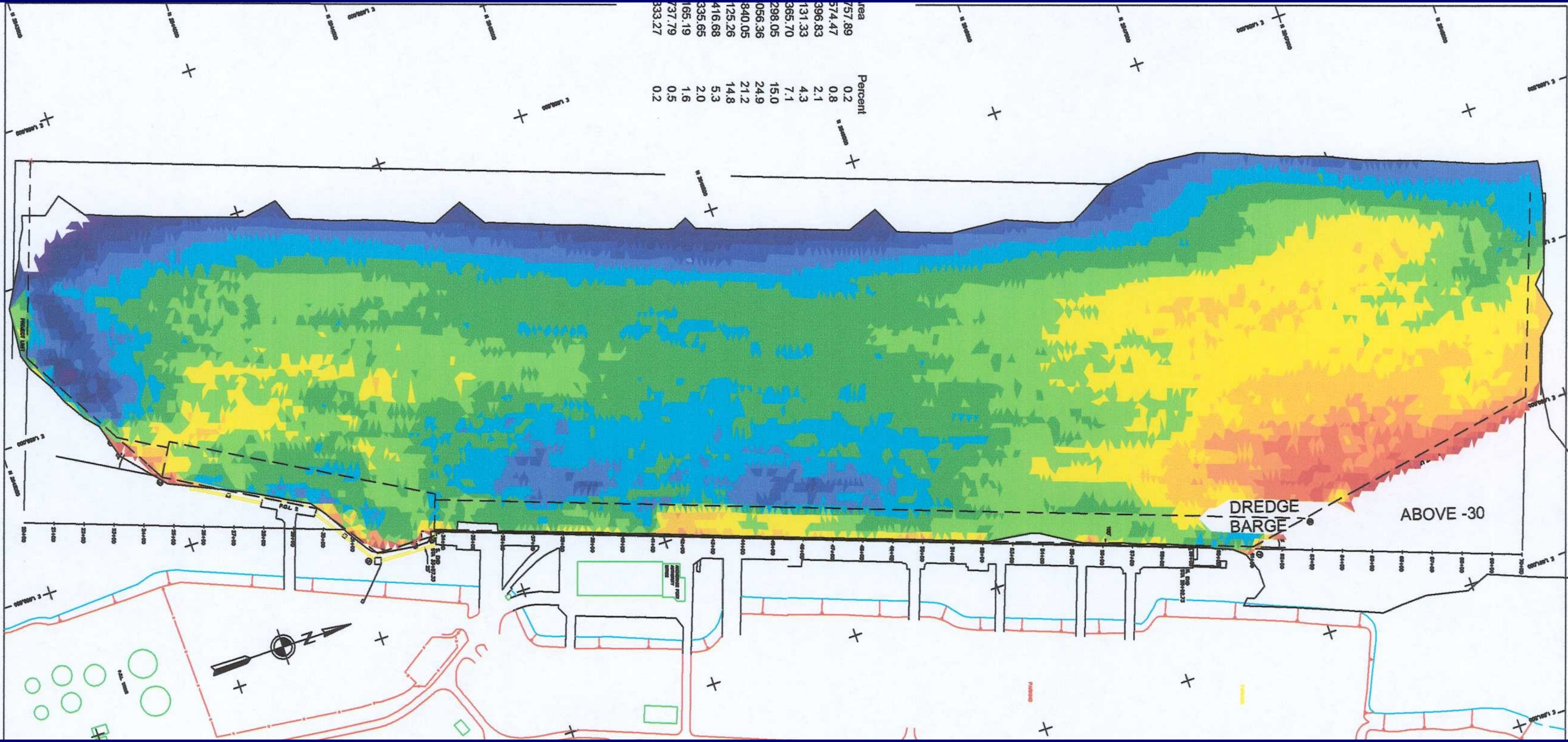

Area
3942.74
6856.42
7696.51
5723.36
2316.74
4591.03
22746.08
9817.35
4701.89
2413.77
4955.69
7109.82
2240.17
2373.72
Percent
0.5
1.6
2.6
3.6
7.3
17.5
24.1
18.4
14.2
5.3
2.7
1.7
0.3
0.3
CARG0 SHIP
DREDGE BARGE
TUG
ABOVE -30

US Army Corps of Engineers
Alaska District

31 October 2003

20 days of Hopper; 19 days of Clamshell Dredging

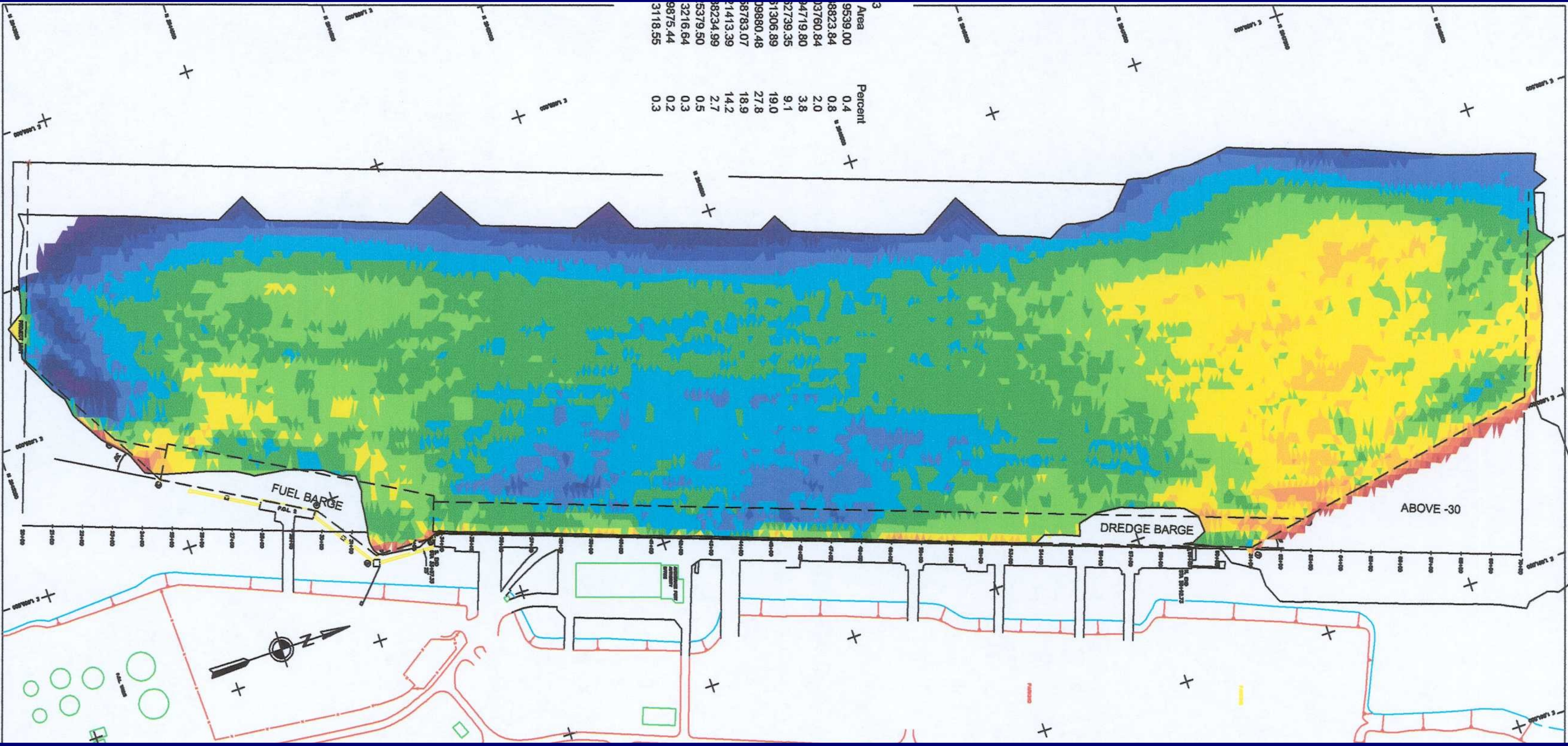
AK


Percent
0.2
0.8
2.1
4.3
7.1
15.0
24.9
21.2
14.8
5.3
2.0
1.6
0.5
0.2
DREDGE BARGE
ABOVE -30

US Army Corps
of Engineers
Alaska District

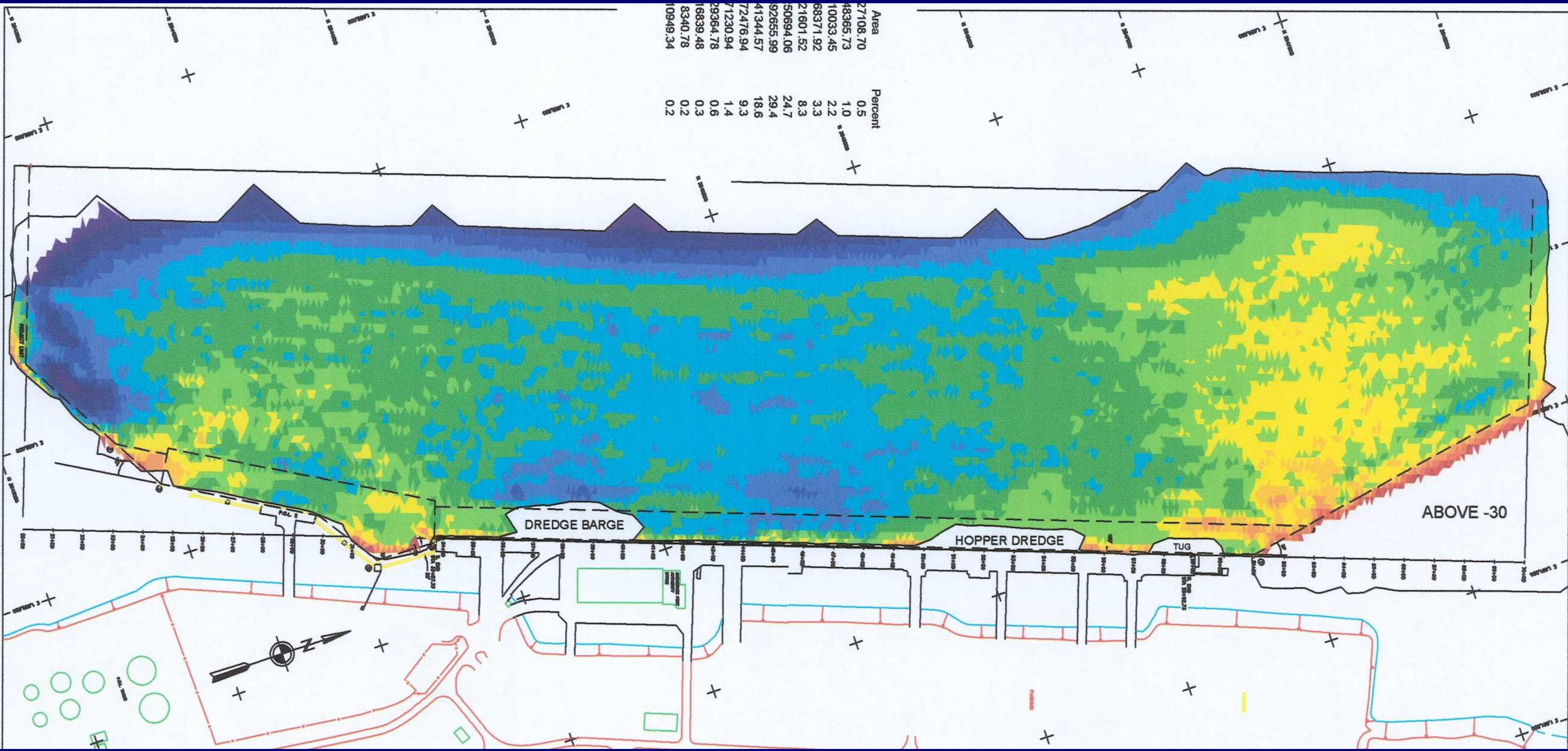
3 November 2003
23 days of Hopper Dredging

AK


Area
9539.00
8823.84
03760.84
4719.80
2739.35
1306.89
09880.48
8783.07
21413.39
8234.99
5379.50
3216.64
9875.44
3118.55
Percent
0.4
0.8
2.0
3.8
9.1
19.0
27.8
18.9
14.2
2.7
0.5
0.3
0.2
0.3
FUEL BARGE
DREDGE BARGE
ABOVE -30
N

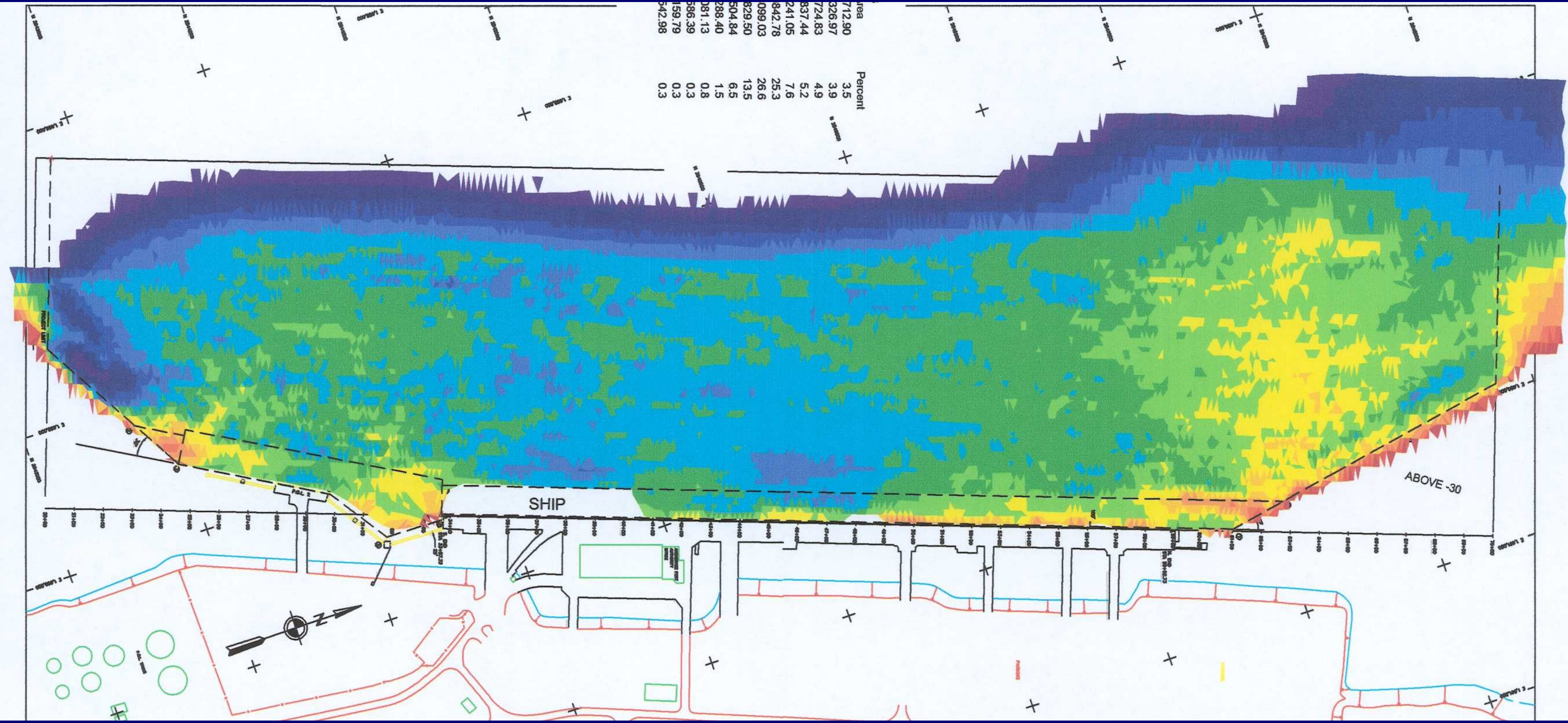
US Army Corps of Engineers
Alaska District

5 November 2003
25 days of Hopper Dredging

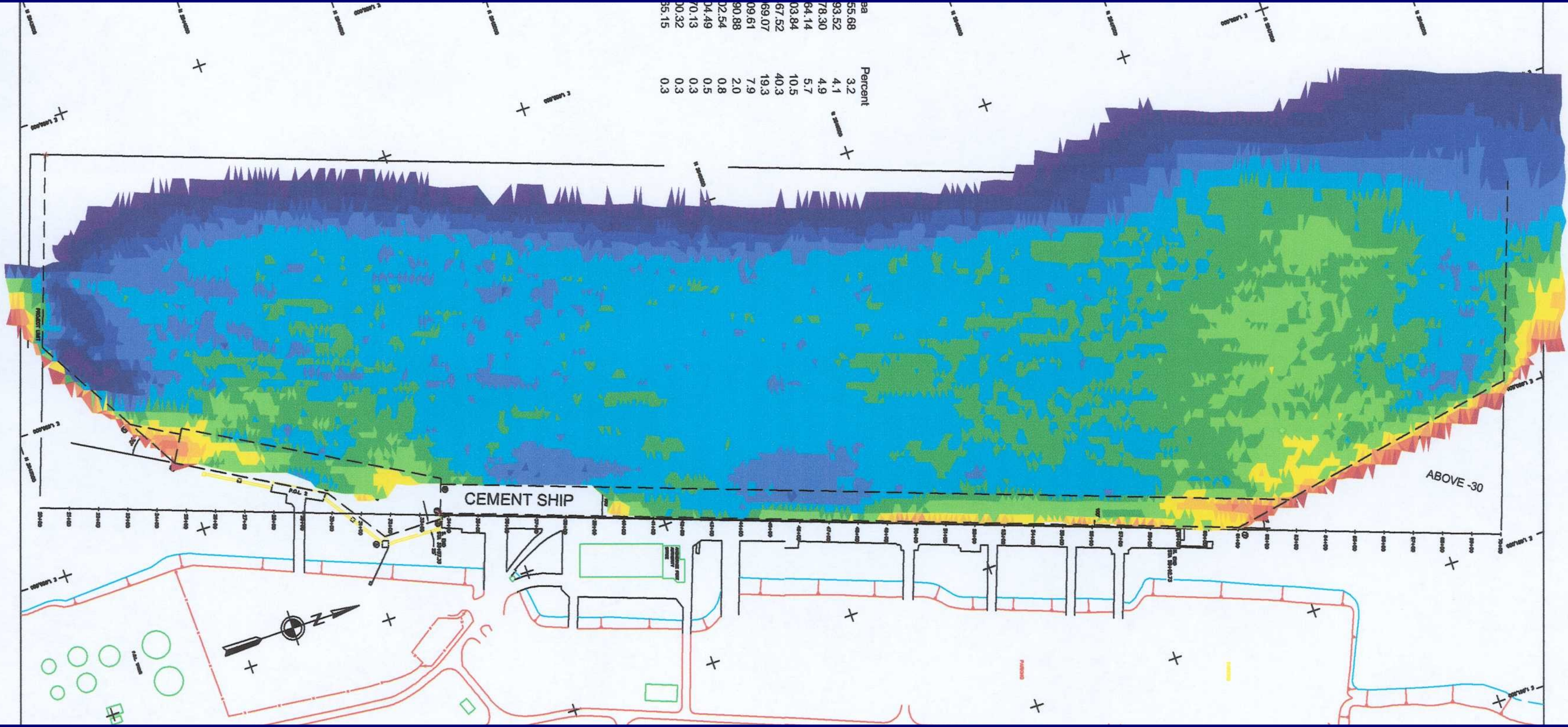

Area
27108.70
48365.73
10033.45
68371.92
21601.52
50694.06
92655.99
41344.57
72476.94
71230.94
29364.78
16839.48
8340.78
10949.34
Percent
0.5
1.0
2.2
3.3
8.3
24.7
29.4
18.6
9.3
1.4
0.6
0.3
0.2
0.2
DREDGE BARGE
HOPPER DREDGE
TUG
ABOVE -30
PROJECT LIMIT
N

US Army Corps of Engineers
Alaska District

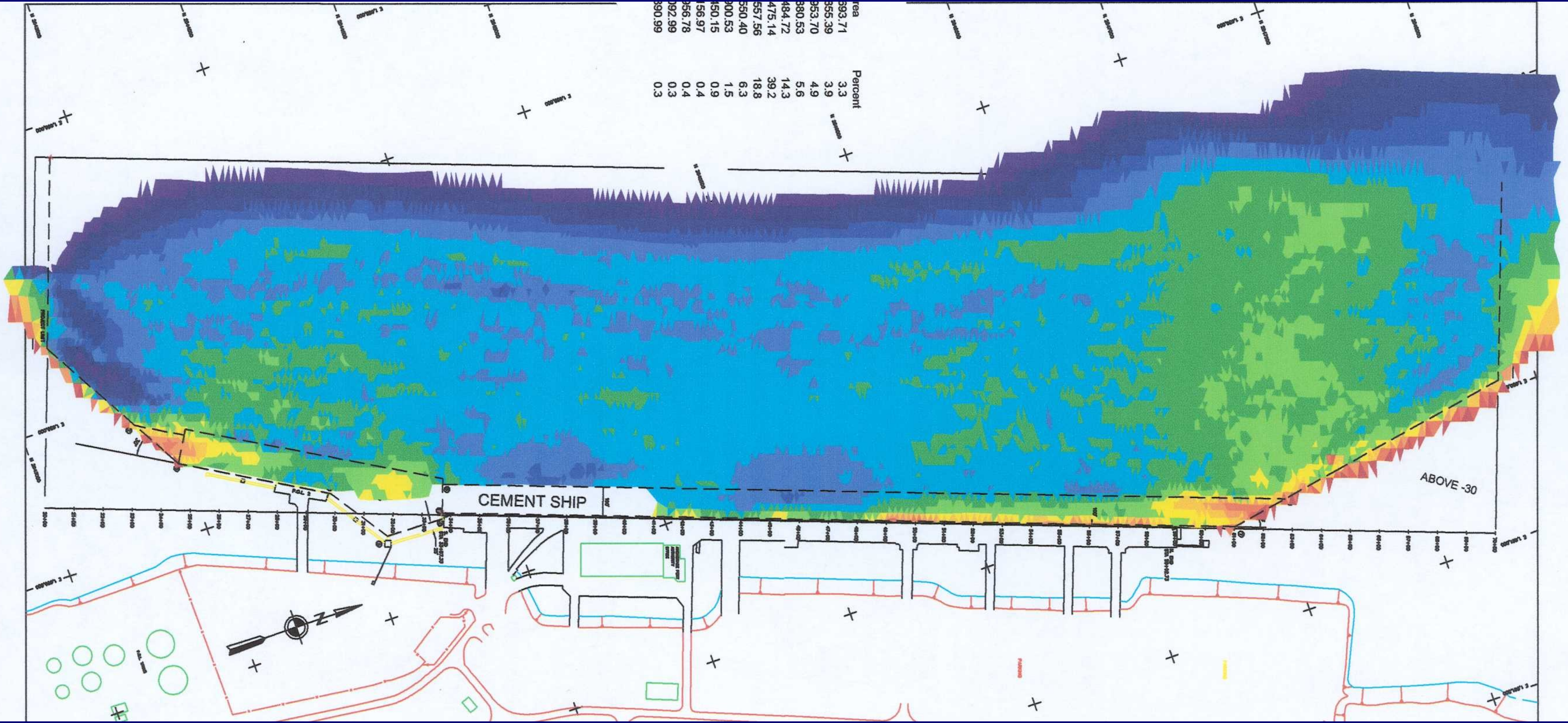
8 November 2003
28 days of Hopper Dredging


rea
712.90
326.97
724.83
837.44
241.05
842.78
099.03
829.50
504.84
288.40
081.13
586.39
159.79
542.98
Percent
3.5
3.9
4.9
5.2
7.6
25.3
26.6
13.5
6.5
1.5
0.8
0.3
0.3
0.3
SHIP
ABOVE -30
N

11 November 2003
31 days of Hopper Dredging

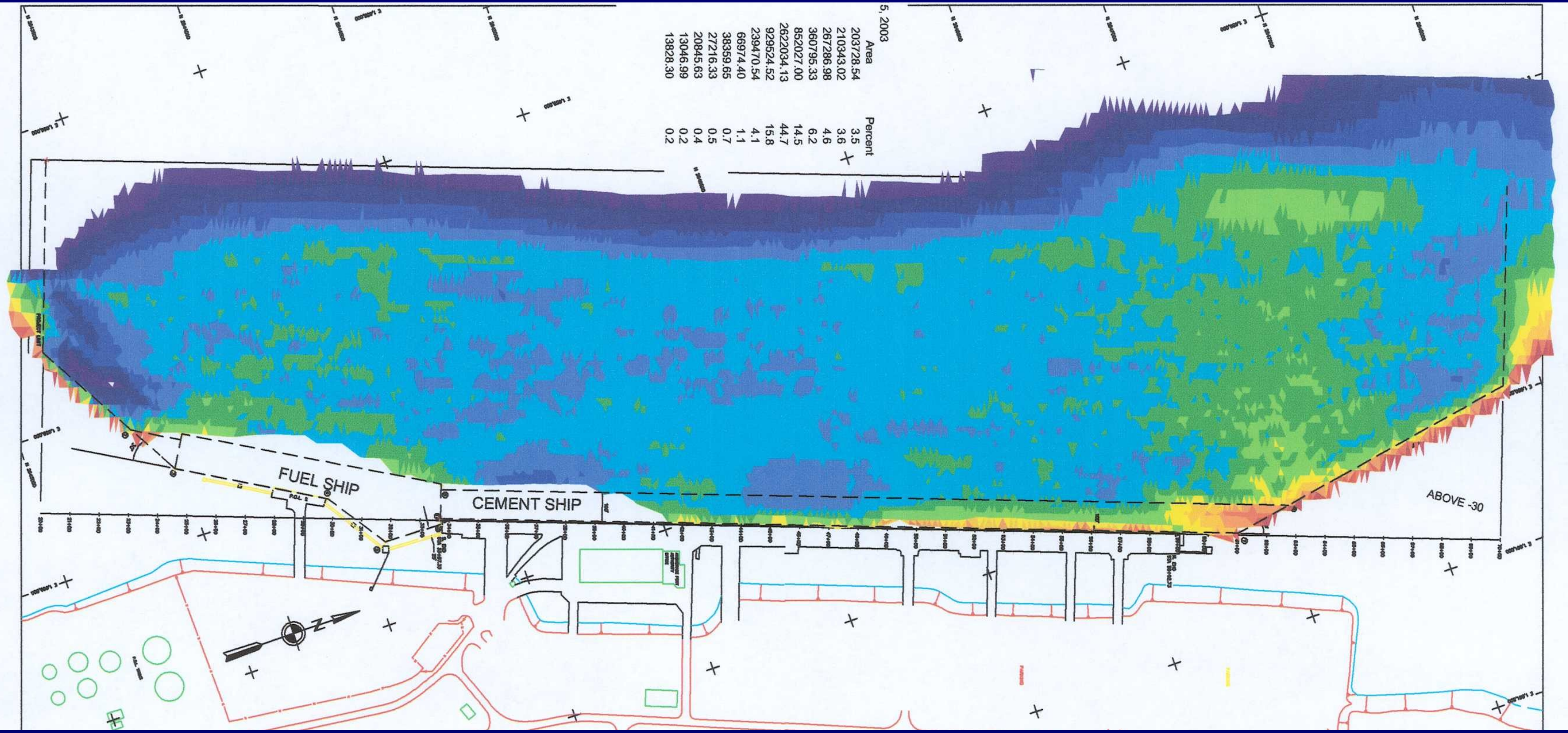

Percent
3.2
4.1
4.9
5.7
10.5
40.3
19.3
7.9
2.0
0.8
0.5
0.3
0.3
0.3
CEMENT SHIP
ABOVE -30
P.O.L. 3

13 November 2003
33 days of Hopper Dredging


Percent
3.3
3.9
4.9
5.6
14.3
39.2
18.8
6.3
1.5
0.9
0.4
0.4
0.3
0.3
CEMENT SHIP
ABOVE -30

US Army Corps of Engineers
Alaska District

15 November 2003
35 days of Hopper Dredging



5, 2003

Area	Percent
203728.54	3.5
210343.02	3.6
267286.98	4.6
360795.33	6.2
852027.00	14.5
2622034.13	44.7
929524.52	15.8
239470.54	4.1
66974.40	1.1
38359.65	0.7
27216.33	0.5
20845.63	0.4
13046.99	0.2
13828.30	0.2

Historical Shoaling Rates

- 3,000 to 19,000 CY/day
- Calculated based on surveys

Speakers

RON FLODIN
Assistant Area Engineer
And
KAREN GARMIRE
Team Leader- Dredging
& Marine Construction
Portland District

Equipment Used Successfully in the Past

CLAMSHELL DREDGES

(TYPICAL SIZES)

- 10 – 14 CY Buckets
- Bucket Weights > 40,000 LBS
- 2000 CY Dump Scow
- Spuds and Cable Anchoring Systems

Equipment Used Successfully in the Past

HOPPER DREDGES

ESSAYONS

WESTPORT

SUGAR ISLAND

Copies of this Presentation

Will be available at:
http://www.poa.usace.army.mil/en/hydro/Anchora

QUESTIONS??

For more info:
http://www.usace.army.mil
or (907) 753-2753